6.—*The Pseudoscorpions of South Africa based on the Collections of the South African Museum, Cape Town.*—By Edv. Ellingsen, Kragerö, Norway.

INTRODUCTION.

At the commencement of the present century the knowledge of the Pseudoscorpions of Tropical and Southern Africa was not very extensive, *Chelifer octentoctus* Balzan, *Chelifer Simoni* Balzan, *Chelifer tenuimanus* Balzan, and *Garypus senegalensis* Balzan being then almost the only species known from that part of the world. During the last ten years, however, the position has quite altered. It will be seen from the Bibliography that C. J. With, Alb. Tullgren, and the author of this publication have, during that period, contributed especially to the knowledge of the Central and South African species of this interesting group of animals. Naturally a great number of the species from a territory so little explored as this has been in this respect would be expected to prove new to science, and a glance at the list below will give ample evidence that such has proved to be the case.

In the vast area of Africa, bordered on the north by the Desert of Sahara, the following species of Pseudoscorpions (including those first mentioned in this publication) have been found, the species of *Chelifer* being enumerated in the divisions hitherto generally used :—

ATEMNUS.

Chelifer Braunsi Tullgren.
,, *Conradti* Tullgren.
,, *equester* With.
,, *equestroides* Ellingsen.
,, *Feae* Ellingsen.
,, *guineensis* Ellingsen.
,, *indivisus* Tullgren.
,, *insubidus* Tullgren.
Chelifer Letourneuxi E. Simon.
,, *O'Swaldi* Tullgren.
,, *Palmquisti* Tullgren.
,, *pusillus* Ellingsen.
,, *rotundus* With.
,, *Sjöstedti* Tullgren.
,, *subindicus* Ellingsen.
,, *Voeltzkowi* Ellingsen.

LAMPROCHERNES.

Chelifer camerunensis Tullgren.
„ *cocophilus* E. Simon.
„ *comorensis* Ellingsen.
„ *ferox* Tullgren.
Chelifer lamellatus Tullgren.
„ *octentoctus* Balzan.
„ *togoensis* Ellingsen.

TRACHYCHERNES.

Chelifer armatus Tömösváry.
„ *boncicus* Karsch.
„ *cimicoides* Fabr. var. *basilëensis* Ellingsen.
„ *concinnus* Tullgren.
Chelifer glabratus Ellingsen.
„ *perpusillus* Ellingsen.
„ *rubidus* Ellingsen.
„ *subfoliosus* Ellingsen.

CHELIFER s.s.

Chelifer angulatus Ellingsen.
„ *angustatus* Tullgren.
„ *Bayoni* Ellingsen.
„ *Büttneri* Ellingsen.
„ *cancroides* Linné.
„ *exiguus* Tullgren.
„ *facetus* Tullgren.
„ *garypoides* Ellingsen.
„ *Kewi* Ellingsen.
„ *minusculoides* nov. sp.
„ *minusculus* nov. sp.
„ *mucronatus* Tullgren.
Chelifer paradoxus nov. sp.
„ *sculpturatus* Lewis.
„ *segregatus* Tullgren.
„ *Simoni* Balzan.
„ *socotrensis* With.
„ *Strandi* Ellingsen.
„ *subruber* E. Simon.
„ *tenuimanus* Balzan.
„ *termitophilus* Tullgren.
„ *torulosus* Tullgren.
„ *tumuliferus* Tullgren.
„ *Walliskewi* nov. sp.

Myrmochernes africanus Tullgren.
Pseudochiridium Trägårdhi Tullgren.
Cheiridium ferum E. Simon.
„ *muscorum* Leach.
„ *subtropicum* Tullgren.
Feaella mirabilis Ellingsen.
„ *mucronata* Tullgren.
Garypus capensis nov. sp.
„ *impressus* Tullgren.
„ *insularis* Tullgren.
„ *minutus* Tullgren.
„ *Purcelli* nov. sp.
Garypus senegalensis Balzan.
Garypinus capensis nov. sp.
„ *obscurus* Tullgren.
Olpium arabicum E. Simon.
„ *deserticola* E. Simon.
„ *nitens* Tullgren.
„ *pusillum* Ellingsen.
„ *Schultzei* Tullgren.
„ *subgrande* Tullgren.
„ *vermis* E. Simon.
Ideobisium Godfreyi nov. sp.
„ *quadrispinosum* Tullgren.

Chthonius clathratus Tullgren.
,, *contractus* Tullgren.
,, *Godfreyi* nov. sp
,, *mordax* Tullgren.
,, *natalensis* Tullgren.
Chthonius serratidentatus nov. sp.
,, *sinuatus* Tullgren.
,, *tetrachelatus* Preyssler.

Recent researches by C. J. With and other zoologists have proved that the genus *Chelifer* will certainly in the future have to be divided into several new genera, based on the different shape of the sexual apparatus of the males, and With has already formed several groups from this point of view: the *birmanicus* group, the *cimicoides* group, the *subruber* group, and the *cancroides* group. I shall therefore try to bring the species of *Chelifer*, enumerated above, into these different groups, as far as it is possible at present; in some cases this cannot yet with certainty be done. I place beside the groups the names which may ultimately perhaps be used as generic titles. The name Withius has been proposed by H. Wallis Kew,* the other names have been used before as generic or subgeneric names, but based on other characters.

BIRMANICUS-TYPE (Atemnus).

Chelifer Braunsi Tullgren (probably, only ♀ known).
,, *Conradti* Tullgren.
,, *equester* With.
,, *equestroides* Ellingsen.
,, *Feae* Ellingsen.
,, *ferox* Tullgren.
,, *guineensis* Ellingsen.
,, *indivisus* Tullgren.
,, *insubidus* Tullgren.
,, *Letourneuxi* E. Simon (perhaps, only ♀ known).
Chelifer O'Swaldi Tullgren.
,, *Palmquisti* Tullgren.
,, *pusillus* Ellingsen (probably, only ♀ known).
,, *rotundus* With.
,, *Sjöstedti* Tullgren.
,, *subindicus* Ellingsen (probably, only ♀ known).
,, *togoensis* Ellingsen.
,, *Voeltzkowi* Ellingsen.

CIMICOIDES-TYPE (Chernes).

Chelifer boncicus Karsch.
,, *cimicoides* Fabr. var. *basilicensis* Ellingsen.
Chelifer concinnus Tullgren.†
,, *rubidus* Ellingsen.
,, *subfoliosus* Ellingsen.

* H. Wallis Kew, "A Synopsis of the False-scorpions of Britain and Ireland" (Proc. Royal Irish Acad., vol. xxix., p. 49).

† Tullgren refers this species to the *subruber*-type.

SUBRUBER-TYPE (Withius).

Chelifer angulatus Ellingsen.
,, *angustatus* Tullgren.
,, *Bayoni* Ellingsen.
,, *Büttneri* Ellingsen.
,, *glabratus* Ellingsen.
,, *paradoxus* Ellingsen.
Chelifer perpusillus Ellingsen
,, *Simoni* Balzan.
,, *subruber* E. Simon.
,, *tenuimanus* Balzan.
,, *termitophilus* Tullgren
,, *tumuliferus* Tullgren.

CANCROIDES-TYPE (Chelifer).

Chelifer cancroides Linné.
,, *facetus* Tullgren.
,, *Kewi* Ellingsen.
,, *minusculoides* Ellingsen.
,, *minusculus* Ellingsen.
Chelifer mucronatus Tullgren.
,, *sculpturatus* Lewis.
,, *socotrensis* With.
,, *torulosus* Tullgren.
,, *Walliskewi* Ellingsen.

The place of the following species is doubtful, partly because females only have as yet been found, and partly because the species are very little known and have not been examined as regards the sexual apparatus of the males.

Chelifer armatus Tömösváry.
,, *camerunensis* Tullgren (♀ only).
,, *cocophilus* E. Simon.
,, *comorensis* Ellingsen (♀ only).
Chelifer exiguus Tullgren (♀ only).
,, *lamellatus* Tullgren (♀ only).
,, *octentoctus* Balzan.
,, *segregatus* Tullgren (♀ only).

Note.—*Chelifer garypoides* Ellingsen belongs perhaps to a special group.

The fauna of Central and South Africa, as regards the Pseudoscorpions, is thus rather a rich one, comprising 87 species, of which 10 are described as new, but other new species will certainly be found by further investigations, especially of the central parts of the area. It will perhaps be of some interest to give a survey of what was known before this publication about the distribution of these animals in the above-named parts of Africa, following the first enumeration of the species.

Chelifer Braunsi Tullgren.

Described from Cape Colony: Algoa Bay (Tullgren, **22.** p. 58). Afterwards recorded from Zululand: Lake Sibayi (Tullgren, **21.** p. 224). In both cases only females.

Chelifer Conradti Tullgren.

Described from West Africa: Camerun (Tullgren, **23.** p. 60), ♂ and ♀. The species has been taken nowhere else.

Chelifer equester With.

Widely distributed; the types were from the district of Kilimanjaro: Taveita (With, **26.** p. 126), ♂ and ♀. Afterwards recorded from German East Africa: Amani (Ellingsen, **6.** p. 28); Natal: Port Natal (Ellingsen, **9.** p. 357); "Africa australis," leg. Drège, with no other locality (Ellingsen, **9.** p. 357); East Africa, Usambara: Mombo (Tullgren, **20.** p. 9); Zululand: Dukudu Bush (Tullgren, **21.** p. 224). For new localities, see further.

Chelifer equestroides Ellingsen.

West African species. The types were from Portuguese Guinea: Rio Cassine; S. Thomé: Ribeira Palma; Island of Principe: Roça Inf. D. Henrique and Bahia Oeste; Fernando Po: Punta Frailes; and French Congo: Fernand-Vaz (Ellingsen, **4.** p. 251), ♂ and ♀. Taken nowhere else.

Chelifer Feae Ellingsen.

The type specimens were from the Caboverdian Islands: San Thiago (Ellingsen, **4.** p. 248), ♂ and ♀. Afterwards recorded from Camerun: Jos. Albrechtshöhe, and Natal: Delagoa Bay (Ellingsen, **9.** p. 357). New localities in the special part.

Chelifer guineensis Ellingsen.

Syn.: *Chelifer* (*Atemnus*) *pallidus* Balzan (nomen præocc.).

Balzan described this species from specimens from Sierra Leone. Since that time it has proved to be a widely distributed species in Western Africa: Portuguese Guinea: Rio Cassine; San Thomé: Ribeira Palma; Fernando Po: Basilé and Punta Frailes; French Congo: Fernand-Vaz (Ellingsen, **4.** p. 246); Togo: Bismarcksburg and Misahöhe; Camerun (Ellingsen, **9.** p. 358).

Chelifer indivisus Tullgren.

The only locality is that of the type: East Africa, Usambara: Mombo (Tullgren, **20.** p. 7), ♂ and ♀.

Chelifer insubidus Tullgren.

A South African species, described from Cape Colony: Port Elizabeth (Tullgren, **22.** p. 59); later it was recorded from Herero-

land: Uitdraai (Tullgren, **24.** p. 286), ♂ and ♀. A new locality in the special part.

Chelifer Letourneuxi E. Simon.

The species was described from Egypt, and has also been taken in Tunisia and Arabia. But its area of distribution extends to Somali: Bela (Pavesi, **13.** p. 158), and to the district of the White Nile: Kaka (Tullgren, **19.** p. 4).

Chelifer O'Swaldi Tullgren.

The only locality is Madagascar: Nossibé (Tullgren, **22.** p. 55), ♂ and ♀.

Chelifer Palmquisti Tullgren.

The type specimens are from the district of Kilimanjaro: Meru and Kiboscho (Tullgren, **20.** p. 12), ♂ and ♀. Later on it was recorded from Nyassa and from the coast of Zanzibar (Ellingsen, **9.** p. 358).

Chelifer pusillus Ellingsen.

The only locality is the Island of San Thomé: Vista Alegre, in West Africa (Ellingsen, **4.** p. 250), ♂ and ♀.

Chelifer rotundus With.

C. J. With has described this species from Asia: The Nicobars. I have referred to this species specimens from Madagascar and from "Africa australis" (leg. Drège) (Ellingsen, **9.** p. 359).

Chelifer Sjöstedti Tullgren.

This large and beautiful species is one of the most widely distributed Pseudoscorpions in the western part of the area under consideration. The species was described by Tullgren from specimens, taken by Dr. Yngve Sjöstedt at Itoki in Camerun (Tullgren, **18.** p. 99). It has since been recorded from several other localities; Congo: Yumbi (Ellingsen, **3.** p. 3); Spanish Guinea (E. Simon, **14.** p. 124); Portuguese Guinea: Rio Cassine; French Congo: Fernand-Vaz and N'kogo; and a variety *Thoméensis* Ellingsen from S. Thomé (Ellingsen, **4.** p. 245); Fernando Po; Camerun: Jaunde Station; Kawandi?; Central Africa: Mukenge (Ellingsen, **9.** p. 359); Congo: Itimbiri (Ellingsen, **8.** p. 218).

Chelifer subindicus Ellingsen.

Only known from the locality, where the type (♀) was taken, Central Madagascar (Ellingsen, **9.** p. 360).

Chelifer Voeltzkowi Ellingsen.

This species is only known from Madagascar. The types (♂ and ♀) were collected in S.W. Madagascar (Ellingsen, **9.** p. 363); a variety: *elongata* Ellingsen, was taken at Marovoay in Madagascar (Ellingsen in: Strand, **16.** p. 488).

Chelifer camerunensis Tullgren.

The type specimens came from Camerun (Tullgren, **18.** p. 100). Later on the species was recorded from Camerun: Buea (Ellingsen, **11.** p. 63), and from Fernando Po (Ellingsen, **9.** p. 366). Females only have been taken.

Chelifer cocophilus E. Simon.

Eug. Simon established the species on specimens from Kelantan in the Malay Peninsula and recorded it afterwards from Spanish Guinea (E. Simon, **14.** p. 124), in neither case with indication of sex.

Chelifer comorensis Ellingsen.

The only locality, till now, is that of the type specimen, ♀, the archipelago of the Comores: Mayotte (Ellingsen, **9.** p. 367).

Chelifer ferox Tullgren.

The type specimens (♂) were from French Congo: Ogowe, and from "Gaboon" (Tullgren, **22.** p. 51).

Chelifer lamellatus Tullgren.

The type specimen (♀) was collected in Natal: van Reenen (Tullgren, **21.** p. 223).

Chelifer octentoctus Balzan.

The only specimen, no sex indicated, badly preserved ("quod igne vastatum mihi videtur," Balzan *l.c.*), was recorded by Balzan from "Africa australis" (Balzan, **1.** p. 515). The species has not been retaken.

Chelifer togoensis Ellingsen.

The species was established on specimens (♂) from Togo: Bismarcksburg, and from Camerun: Jos. Albrechtshöhe (Ellingsen, **9.** p. 369). It was later on recorded from Uganda: Bugala (Is. di Sesse) (Ellingsen, **10.** p. 536), and from Camerun: Bibundi (Ellingsen, **11.** p. 63).

Chelifer armatus Tömösváry.

A rather dubious species, based by Tömösváry on specimens from Ashanti, West Africa (**25.** p. 18). Still more doubtful is the record of this species by Daday, from Herczegovina and Corfu.

Chelifer boncicus Karsch.

This species was established by Karsch on specimens from Japan. In the collections of the Berlin Museum there is one female from N.W. Madagascar which I was unable to distinguish from examples from Japan in the same collections (Ellingsen, **9.** p. 373).

Chelifer cimicoides Fabr.
var. basiléensis Ellingsen.

This species, common in Europe, has a variety, taken by L. Fea in the Island of Fernando Po : Basilé (Ellingsen, **4.** p. 252).

Chelifer concinnus Tullgren.

The types, ♂ and ♀, were from Orange Free State : Bothaville (Tullgren, **22.** p. 41). Tullgren, in a later publication, recorded the species from Zululand : Lake Sibayi (**21.** p. 224). New localities in the special part.

Chelifer glabratus Ellingsen.

A West African species, the types of which (♂ and ♀) were collected in N. Camerun : Jos. Albrechtshöhe (Ellingsen, **9.** p. 374).

Chelifer perpusillus Ellingsen.

Only known from British East Africa : Takanuga, ♂ and ♀ (Ellingsen, **9.** p. 378).

Chelifer rubidus Ellingsen.

Leonardo Fea collected the types of this species, ♂ and ♀, in Portuguese Guinea : Rio Cassine, and in S. Thomé : Ribeira Palma (Ellingsen, **4.** p. 254). I have referred to the same species a specimen from Ecuador in South America.

Chelifer subfoliosus Ellingsen.

The species was based on a male (Ellingsen, **9.** p. 381), with no other indication of locality than "Africa." The species is recorded from Cape Colony, collected by the Rev. Robert Godfrey.

Chelifer angulatus Ellingsen.

The types of this species, the only known specimens, ♂ and ♀, were taken by L. Fea in the Island of Principe: Roça Inf. D. Henrique and Bahia do Oeste (Ellingsen, **4.** p. 258).

Chelifer angustatus Tullgren.

The only locality is Kilimanjaro: Kibonoto, ♂ (Tullgren, **20.** p. 14).

Chelifer Bayoni Ellingsen.

The types, ♀ only, were from Uganda, Archipelago di Sesse: Buvama (Ellingsen, **10.** p. 538). New localities in the special part; also males.

Chelifer Büttneri Ellingsen.

The species was based on specimens, ♂ and ♀, from West Africa, Togo: Bismarcksburg (Ellingsen, **9.** p. 384); a female from the Nyassa Mountains (*loc. cit.*) seems to belong to the same species.

Chelifer cancroides Linné.

This species, common in Europe, has been transported by man to other parts of the world, and has been recorded from some localities in Africa, for instance from the Cape of Good Hope (Ellingsen, **9.** p. 384). I have in my collection a male from the Gold Coast (West Africa), collected by Biedermann. Some other localities will be given in the special part below.

Chelifer exiguus Tullgren.

The type specimen, a female only, was collected at Kilimanjaro: Kibonoto (Tullgren, **20.** p. 13). A new locality in the special part.

Chelifer facetus Tullgren.

The type specimens, females only, were from Natal: Stamford Hill (Tullgren, **21.** p. 224). A new locality in the special part.

Chelifer garypoides Ellingsen.

The species was founded on specimens, ♂, from Portuguese Guinea: Bolama (Ellingsen, **4.** p. 259). Later on C. J. With recorded it from St. Paul's Rock in mid-Atlantic (With, **29.** p. 19). New localities will be given in the special part.

Chelifer Kewi Ellingsen.

This species seems to be a common one in the south of Africa: the original specimens came from Cape Colony: Witte Hardt,

Nieuwveldt, about 5,000 feet above the sea (Ellingsen, **7.** p. 164), ♂ and ♀. A form of this species, var. *Fülleborni* Ellingsen, is recorded from East Africa: Langenburg, and British East Africa: Takanuga (Ellingsen, **9.** p. 385). Several new localities, with a number of specimens, together with some interesting notes on the manner of life of this species, will be given in the special part.

Chelifer mucronatus Tullgren.

A very beautiful species. The type specimens, ♂ and ♀, were taken in the Orange Free State: Bothaville, and Cape Colony: Port Elizabeth (Tullgren, **22.** p. 32), and the species has since been recorded from Zululand: Dukudu (Tullgren, **21.** p. 220). More information on this species will be given in the special part.

Chelifer sculpturatus Lewis.

One of the most remarkable and curious species, if not the most curious one, among the Chelifers. The species was founded by Lewis in 1903 (Lewis, **12.** p. 497) on specimens, ♂ and ♀, from Natal (taken in beehives), and redescribed (from the same specimens) by C. J. With (**26.** p. 122). In the collections of the South African Museum there are some specimens from Natal and Transvaal (see the special part).

Chelifer segregatus Tullgren.

A single specimen, ♀, from South Africa, Hereroland: Rooibank (Tullgren, **24.** p. 285). A new locality in the special part.

Chelifer Simoni Balzan.

Syn.: *Chelifer madagascarensis* Ellingsen.

One of the most widely distributed species in the tropical parts of the world, especially in Africa, but it is also recorded from some localities out of this continent, perhaps imported. In Africa this species has a wide distribution; in West Africa, especially, many localities are known. Originally described from Sierra Leone (Balzan, **1.** p. 531), and redescribed as *Ch. madagascarensis* (Ellingsen, **2.** p. 137) from Madagascar, it has been afterwards reported from Camerun by Tullgren (**18.** p. 100), and from Camerun: Jaunde and Jos. Albrechtshöhe (Ellingsen, **9.** p. 387); from Camerun: Bibundi (Ellingsen, **11.** p. 63); Islands of Cabo Verde: Brava; S. Thiago: Orgaos Grandes; S. Nicolão; Portuguese Guinea: Bissau, Rio Cassine, and Bolama; San Thomé: Ribeira Palma; Fernando Po: Punta Frailes (Ellingsen, **4.** p. 255); Benguela: Huxe

(With, **28.** p. 66) ; Togo : Bismarcksburg, and Senegal (Ellingsen, **9.** p. 387). From the central and eastern parts of Africa we have the following localities : Uganda : Bugala (Ellingsen, **10.** p. 536) ; Eritrea : Ghinda (Ellingsen, **8.** p. 218), and Réunion (Ellingsen, **9.** p. 387). A new locality will be given in the special part.

Chelifer socotrensis With.

The type specimens were from Socotra, ♂ and ♀ (With, **26.** p. 116).

Chelifer Strandi Ellingsen.

The species was founded on specimens, ♂ and ♀, from German East Africa : Amani (Ellingsen, **6.** p. 30), and has been taken nowhere else.

Chelifer subruber E. Simon.

A cosmopolitan species to which were referred some specimens from German East Africa : Amani and Bomola (Ellingsen **6.** p. 28).

Chelifer tenuimanus Balzan.

A species very nearly related to *Ch. Simoni* ; established by Balzan on specimens from Madagascar : Nossi-bé (Balzan, **1.** p. 532), and not since met with.

Chelifer termitophilus Tullgren.

Only known from Natal : Stamford Hill (Tullgren, **21.** p. 221), ♂ and ♀.

Chelifer torulosus Tullgren.

Tullgren based the species on specimens, ♂ and ♀, from Cape Colony : Port Elizabeth (Tullgren, **22.** p. 35), and reported it afterwards from Natal : Stamford Hill, and from Zululand : Dukudu (Tullgren, **21.** p. 220). I am very much inclined to believe it the same species as *Ch. Kewi* Ellingsen.

Chelifer tumuliferus Tullgren.

An interesting species from Namalaland : Port Nolloth (Tullgren, **24.** p. 284). As regards a new locality, see the special part.

Myrmochernes africanus Tullgren.

This species belongs to a genus autochthon in Africa ; the single species known is the above from Cape Colony : Port Elizabeth (Tullgren, **22.** p. 61). Females only, and taken nowhere else.

Pseudochiridium Trägårdhi Tullgren.

The tropical genus Pseudochiridium With is represented in Africa by this species from Natal: Town Bush, Maritzburg (Tullgren, **21.** p. 226).

Cheiridium museorum Leach.

A species widely distributed throughout all Europe and also reported from Algeria, in inhabited places. It was, therefore, a very remarkable incident, that this species was taken in Cape Colony: Pirie Forest, on yellow-wood. As regards its occurrence there, see the special part.

Cheiridium ferum E. Simon.

This species was hitherto known only in Europe: France, Italy, and Switzerland. It has been taken by the Rev. Robert Godfrey in Cape Colony: see the special part.

Cheiridium subtropicum Tullgren.

The types of this species were taken in Zululand: Umfolozi (Tullgren, **21.** p. 220), ♂ and ♀. As regards its occurrence in Cape Colony, see the special part.

Note.—Two other species of this genus are known: *Ch. corticum* Balzan, from South America, and *Ch. formosanum* Ellingsen from Asia. I quite agree with Tullgren (**21.** p. 216), that *Cheiridium tetrophthalmum* Daday (from Hungary) does not belong to this genus, but to Garypus.

Feaella mirabilis Ellingsen.

The types of this species, on which the genus Feaella was founded, were taken by Leonardo Fea in Portuguese Guinea: Bolama (Ellingsen, **4.** p. 263), and the animal has been taken nowhere else.

Feaella mucronata Tullgren.

The species was based on specimens from Natal: Amanzimtoti (Tullgren, **21.** p. 228). See the special part.

Garypus impressus Tullgren.

The only localities for this species were, till now, those of the type specimens, viz., Natal: Van Reenen, and Amanzimtoti, and Zululand: Junction of the black and the white Umfolozi (Tullgren, **21.** p. 229). For further localities, see the special part.

Garypus insularis Tullgren.

The only locality known is that of the type specimen, ♀, Seychelles (Tullgren, **22.** p. 63).

Garypus minutus Tullgren.

The type specimen, ♀, was from Cape Colony: Port Elizabeth (Tullgren, **22.** p. 66). Tullgren afterwards reported it from Natal: Stamford Hill and Van Reenen (**21.** p. 229). Several new localities will be reported in the special part.

Garypus senegalensis Balzan.

Syn.: *Garypus olivaceus* Tullgren, **22.** p. 63.

I have no doubt that Tullgren's species is a synonym of *G. senegalensis* Balzan.

Balzan (**1.** p. 535) indicates no locality for the type specimens, certainly only by neglect, for in giving the species the name *senegalensis*, he must have understood that the specimens had come from Senegal. Tullgren based his species *G. olivaceus* on specimens from Orange Free State: Bothaville (**22.** p. 65), and has later reported it from Natal: Stamford Hill, as well as from Zululand: Lake Sibayi, Dukudu, and junction of the Black and White Umfolozi (Tullgren, **21.** p. 229).

As regards new localities, see the special part.

Garypinus obscurus Tullgren.

The type specimens, ♀ only, were from Orange Free State: Bothaville (Tullgren, **22.** p. 69); afterwards reported from Zululand: Entendweni, Mtetwa, and junction of the Black and the White Umfolozi (Tullgren, **21.** p. 229). Further localities in the special part.

Olpium arabicum E. Simon.

E. Simon described this species from specimens from Arabia. This locality was the only one, until some examples from the Islands of Cabo Verde: Ilheo Razo (Ellingsen, **4.** p. 263) were identified as belonging to this species; afterwards it was recorded from Madagascar: Ste. Marie (Ellingsen, **9.** p. 390), and from Uganda: Is. di Sesse, Bugala (Ellingsen, **10.** p. 538). In the special part will be given a locality from South Africa. It thus seems that the species (if rightly identified) belongs more to the African than to the Arabian fauna.

Olpium deserticola E. Simon.

Originally described from Tunisia and Algeria; a number of specimens from the area in question, viz., several places in the Islands of Cabo Verde: Boa Vista; Brava; S. Thiago: Pedra Badejo; and Fogo: S. Felipe (Ellingsen, **4.** p. 264), were identified with this species. It has also been recorded from Sicily.

Olpium nitens Tullgren.

The type specimen is from South Africa, Great Namaqualand: Lüderitz Bay (Tullgren, **24.** p. 287). Some new localities will be given in the special part.

Olpium pusillum Ellingsen.

The original specimen, a ♂, was from Cape Colony: Fishhoek near Simonstown (Ellingsen: in Strand **17.** p. 596). As to the relationship between this species and the preceding one, see the special part.

Olpium Schultzei Tullgren.

The single type specimen of this species was described from South Africa, Great Namaqualand: Prince of Wales Bay (Tullgren, **24.** p. 287).

Olpium subgrande Tullgren.

The species was described from a single specimen from South Africa: Kalahari, between Kang and Khakhea (Tullgren, **24.** p. 288). Another locality (in Rhodesia) will be given in the special part.

Olpium vermis E. Simon.

This species, originally described from Egypt and reported later from the whole of the southern coast of the Mediterranean, has also been recorded from the Island of Annobom, on the Guinea Coast (Ellingsen, **4.** p. 263). One female.

Ideobisium quadrispinosum Tullgren.

The species was based on ♀ from Natal: Town Bush, Maritzburg (Tullgren, **21.** p. 231). In the special part will be reported several localities in Cape Colony.

Chthonius clathratus Tullgren.

The type specimens were from Natal: Town Bush, Maritzburg, and from Zululand: Lake Sibayi (Tullgren, **21.** p. 234), ♂ and ♀. A new locality will be given in the special part.

Chthonius contractus Tullgren.

This species, too, was based on specimens from Natal: Van Reenen; Amanzimtoti; and Stamford Hill. Zululand: Lake Sibayi; Junction of the Black and the White Umfolozi (Tullgren, **21.** p. 233), ♂ and ♀. It has also been recorded from Eritrea: Ghinda, on the Red Sea, ♀ (Ellingsen, **8.** p. 219). The Rev. Robert Godfrey has taken it on the Pirie Mountains (see the special part).

Chthonius mordax Tullgren.

The type specimens, ♂ and ♀, were collected in Natal: Caversham, and Stamford Hill; and in Zululand: Lake Sibayi (Tullgren, **21.** p. 235). This species is widely distributed in Cape Colony, a great number of specimens having been collected (see the special part).

Chthonius natalensis Tullgren.

Reported only from Natal: Stamford Hill, ♂ (Tullgren, **21.** p. 232).

Chthonius sinuatus Tullgren.

The type specimen was collected in Camerun (Tullgren, **18.** p. 101). Afterwards the species was recorded for Portuguese Guinea: Rio Cassine, and from San Thomé: Vista Alegre (Ellingsen, **4.** p. 265). A new locality (in Cape Colony) will be given in the special part.

Chthonius tetrachelatus Preyssler.

This species is widely distributed throughout the palæarctic area, and also occurs in North America; curiously enough some specimens of this form were found in a collection from the Seychelles (Ellingsen, **9.** p. 402).

It was with great interest that I looked forward to the examination of the rich collections of Pseudoscorpions which the Director of the South African Museum in Cape Town had been kind enough to place at my disposal, and the results fully justified my expectations, and of no less interest were the collections which the Rev. Robert Godfrey had brought together chiefly from the environs of the Pirie Mission. Beside the new species, there were several, already known, of great interest, of which may be mentioned: *Chelifer sculpturatus* Lewis, *Ch. tumuliferus* Tullgren, *Cheiridium museorum* Leach, *Cheiridium ferum* E. Simon, and *Feaella mucronata* Tullgren, to point out only the more remarkable ones. The knowledge of the distribution of these animals in the south of Africa has thus been very much enlarged, thanks to the zeal with which several naturalists have collected for the Museum.

As was mentioned in the Introduction, 87 species are now known from the area in question, and of these no less than 42 species were represented in the collections from the South African Museum and from Mr. Godfrey, of which 10 species are believed to be new.

1. Chelifer equester With.

In the collections of the South African Museum there were specimens from two localities:—

Transvaal Province: Shiliowane (Rev. H. Junod), 2 ♀; Natal Province: Durban (C. N. Barker), 2 ♂.

2. Chelifer Feae Ellingsen.

Cape Province. East London (J. Wood), 1 ♂.

The Rev. R. Godfrey reports for this species the following localities, from which I have examined 2 ♂, 1 ♀:—

Cape Province. King William's Town Div.: Burnshill, Pirie, and Xukwane; Victoria East Div.: Woodstock and Lovedale, collected by Miss Fanny Ross and Mr. Godfrey, on blue gum and on yellow-wood.

Mr. Godfrey writes of this species: "A tree species, living in the looser outside bark, taking shelter in crannies when disturbed. I obtained immature specimens moulting in nests, November 21, 1907. On November 27, 1907, I found one in a very roomy nest on a gum-tree; the animal was at one corner of the nest, and the larval mass (quite detached from her) was at the other corner. This is the only instance in which I have seen such a thing, and I would need to see

it a second time before I could definitively record it, as there is a possibility of the separation having been caused as I wrenched off the bark." *

3. Chelifer insubidus Tullgren.

The Rev. Godfrey gives in a letter the following list of localities for this species :—

Cape Province. King William's Town Div.: Pirie Forest, Pirie, Frankfort Hill, and Ntaba Kandoda, under bark of yellow-wood and on wild fig. I have examined 2 ♂, 2 ♀, 2 jun.

"A forest species, living on trees" (Godfrey in litt.).

4. Chelifer concinnus Tullgren.

Cape Province. Cape Town (W. F. Purcell), 1 ♂, 1 ♀; Stellenbosch Div.: Faure (W. F. Purcell), 1 ♀.

Tullgren's type specimens were certainly rather young, to judge from his statement of their colour and of the longitudinal stripe of the abdomen being indistinct owing to the pale colour of the tergites. Yet, the colour of the specimens from Cape Colony, too, is rather a light one. Another reason for supposing that Tullgren's specimens were not adult, is that he refers the species to the *subruber* group, although with a sign of interrogation; the species belongs certainly to the *cimicoides* group, and this the whole appearance also seems to indicate. Tullgren's specimens also certainly had the abdomen very much contracted, as he states that the palps are much longer than the body; in the specimens mentioned above, with abdomen extended, the palps are at least no longer than the body. The specimens from Cape Province have the femur and the tibia of the palps more robust, which, too, seems to indicate that the specimens are more developed.

5. Chelifer subfoliosus Ellingsen.

Cape Province. King William's Town Div.: Ntaba Kandoda (R. Godfrey), 1 ♂, 1 ♀.

I think the above two specimens belong to this species, though I have no original specimens to compare them with. The species seems to belong to the *cimicoides* group, not to the *subruber* group which I thought from the type specimens to be the case, perhaps on account of their young state.

* I have seen such a thing once myself, in Norway, with a *Chelifer Cyrneus* L. Koch, the larval mass separated from the mother (Ellingsen, Norske Pseudoscorpioner. II. Chra. Vid. Selsk Forh., 1903, No. 5, p. 10).

6. Chelifer Bayoni Ellingsen.

Cape Province. King William's Town Div.: Pirie, 1 ♀ in the nest of the Fiscal Shrike (*Lanius collaris* L.); Izeli, 2 ♀ in a stable; Green River, 2 ♀ jun., all collected by Mr. Godfrey; Blythswood (W. J. A. Moir), 1 ♂, 4 ♀, 3 jun. (I have also seen a specimen (♀) found in Port Elizabeth Museum, forwarded for identification by Mr. Hewitt, Grahamstown Museum.)

The male in the last lot proves that the species belongs to the *subruber* group.

7. Chelifer cancroides L.

Cape Province. Stellenbosch Div.: Faure (W. F. Purcell), 1 ♂; Stellenbosch (L. Péringuey), 1 ♀; Malmesbury Div.: Berg River (W. L. Sclater), 1 ♀.

8. Chelifer exiguus Tullgren.

Cape Province. Cape Peninsula: Bergvliet, 1 ♀, in nest of a bee.

The specimen agrees in all essentials with the description of this species, with the following exceptions: The colour is, on the whole, reddish-brown, and the cephalothorax is not quite evenly granulate, but has some dispersed bigger tubercles.

9. Chelifer facetus Tullgren.

Cape Province. King William's Town Div.: Pirie (R. Godfrey), 3 ♂, 1 ♀ jun.

Tullgren, as will be seen from the Introduction, based this species on specimens (♀) from Natal. I have referred the above specimens from Pirie to the same species, as they agree well with Tullgren's description, the fact that my specimens, at least the adult ones, are males, being, of course, taken into consideration; it is evident from the males that the species belongs to the *cancroides* group, but the tergites are destitute of lateral keels and of posterior spine-like tubercles. The claws have no teeth; the posterior claw of I. pair of legs is a little abnormal, being somewhat irregular and straightened. The trochantin of the IV. pair of legs is characterised by being perpendicularly articulated, as stated by Tullgren.

10. Chelifer garypoides Ellingsen.

Cape Province. Robertson Div.: Montagu Baths (W. F. Purcell), 1 jun.; Cape Peninsula: Simonstown (R. M. Lightfoot), 1 ♀; Retreat Flats (R. M. Lightfoot), 2 ♂; (W. F. Purcell), 1 ♀, 1 jun.; Table Mountain (R. M. Lightfoot), 1 ♂; near Platteklip (W. F. Purcell), 1 ♂.

In the Rev. R. Godfrey's collection: Port Elizabeth, 2 ♂, 1 ♀, 1 jun., under stones on the veld (Godfrey); King William's Town Div.: Green River (Godfrey), 1 jun.

11. Chelifer Kewi Ellingsen.

Cape Province. Cape Peninsula: Cape Town, Salt River, and Wynberg (W. F. Purcell, R. M. Lightfoot), 14 ♂, 9 ♀, 25 jun.; Devil's Peak (W. F. Purcell), 2 ♂; Hout Bay (W. F. Purcell), 11 ♂, 6 ♀, 1 jun.; St. James (W. F. Purcell), 1 ♂, 2 ♀, on sea-shore; Sea Point (W. F. Purcell), 1 ♂; Cape Flats, at Zeekoe Vlei (W. F. Purcell), 1 ♂, 1 ♀; Bergvliet (W. F. Purcell), 8 ♂, 5 ♀, 1 jun., in grass; Miller's Point, near Simonstown (W. F. Purcell), 5 ♂, 2 ♀; Simonstown Mountains (D. L. Patrick), 1 ♀; Signal Hill (R. M. Lightfoot), 1 ♀; Knysna Div.: Balmoral (W. F. Purcell), 9 ♂, 9 ♀, 1 ♂ jun., 1 ♀ jun.; Hanover (S. C. Cronwright Schreiner), 2 ♂; Caledon Div.: Hermanuspetrusfontein (R. M. Lightfoot), 8 ♂, 1 ♀; (H. Herman), 4 ♂.

I have examined several specimens from the Rev. R. Godfrey's collection; he gives in a letter the following localities:—

King William's Town Div.: Green River, Pirie, and King William's Town; Victoria East Div.: Lovedale. They were taken under stones, in a hen-house, in a garden (Miss Fanny Ross), and under a piece of wood, in a stable.

Note 1.—About this species, Mr. Godfrey gives in a letter some interesting particulars: "Like *Chelifer cancroides*, this species seems to depend largely on man for the extension of its range. It is a very common species here, and practically always attendant on man. I have found only one specimen at a distance from human haunts. On November 5, 1908, I found a female with well-developed larval mass in a nest under a stone. The nest was of sand, with larger pieces of grit; it was very sparingly lined with silk, and therefore by no means firm. The attachment of silk on the surface of the stone was also very sparing. Measurement of nest at surface of attachment, 5 × 4 mm. On April 1, 1908, I found one eating an immature *Chelifer;* it seemed to have hold simply by the mouth apparatus. While I held the *Chelifer Kewi*, I saw it deliberately remove the husk from its mouth with its right palp."

Note 2.—Even in an immature state, the male and female of this species may, I think, be distinguished before the sexual apparatus is visible, the males already in that state having the galea simple and of smaller size, and coxa IV. rather slender, the females with the galea somewhat more robust and with teeth, and coxa IV. very robust.

12. Chelifer minusculoides nov. sp.

♂. Two eyes, one on each side.

Colour.—Cephalothorax and tergites greyish brown, palps more reddish brown, the other parts paler.

Cephalothorax a little longer than broad behind, rather regularly and roundly narrowing forwards, rounded in front, the front margin nearly straight. Two narrow but distinct transverse grooves; the anterior one about in the middle, nearly straight, only a little curved forwards laterally; the posterior groove much nearer to the hind margin than to the anterior one, in the middle slightly curved backwards, laterally somewhat widened. The posterior corner of cephalothorax *not produced* into spine-like tubercles. The surface somewhat glossy, rather coarsely granulate, but with *no bigger tubercles;* the hairs truncate.

Abdomen.—The tergites divided longitudinally by a fine stripe, except the first and the last ones. Tergites 1–5 more or less distinctly *keeled* laterally (the keels decreasing in strength backwards) and produced *into spine-like tubercles* posteriorly. The surface somewhat glossy, coarsely shagreened. The hairs slender and truncate, but most of them are broken; no tactile hairs on the last segment. The sternites also divided longitudinally, except the last one, glossy and slightly shagreened; the hairs slender and pointed.

Palps about as long as the body (with abdomen contracted). Coxa glossy and nearly smooth. The other joints glossy and nearly smooth, except trochanter and femur, which are somewhat granulate on the inner and partly on the upper side; the hand especially is very glossy and smooth. The hairs short, dentate, passing into truncate and pointed ones. Trochanter with a distinct stalk, roundish, semicircular in front, behind with a rounded, coarsely granulate tubercle, above with a rounded tubercle, pointing backwards. Femur with a distinct stalk, three times as long as broad, nearly straight in front, only a little sinuated towards the tip, behind regularly and moderately convex. Tibia with a moderately long stalk, this excepted a little shorter and a little broader than femur, regularly and moderately convex in front, behind somewhat less convex, most so towards the extremity. Hand with a distinct stalk, and regularly rounded base, 1½ times as broad as tibia, on both sides about evenly and moderately convex, passing gradually into the fingers. Fingers robust, considerably curved, a little shorter than the hand.

Mandibles.—Galea very small and simple.

Legs smooth and glossy. Coxa IV. strongly curved with very distinct coxal sac opening. The hairs pointed. The inner claw of I. pair of legs somewhat irregular and straightened, the other claws simple. The species belongs to the *cancroides* group.

Length 1·50 mm. (abdomen contracted); width 0·64 mm.

Measurements.—Cephalothorax: long. 0·57; lat. 0·50. Femur: long. 0·43; lat. 0·14. Tibia: long. 0·40; lat. 0·17. Hand: long. 0·43; lat. 0·26. Fingers: long. 0·39 mm.

Habitat.—Cape Province. King William's Town Div.: Pirie Forest, May 13, 1908 (R. Godfrey), 1 ♂, on a tree.

Note.—The species is allied to *Ch. minusculus* nov. sp. (see below), but differs from it in having keels and lateral spine-like tubercles on the tergites, the palps less granulate, the hairs more simple, and one claw of I. pair of legs abnormal. Both species, *Ch. minusculus* and *Ch. minusculoides*, are nearly allied to *Ch. mucronatus* Tullgren. These two names were proposed by the Rev. Godfrey.

13. Chelifer minusculus nov. sp.

♂. Two eyes, one on each side.

Colour.—Cephalothorax and tergites greyish brown; sternites, palps, and legs pale reddish brown.

Cephalothorax as long as wide behind, nearly parallel-sided up to the anterior groove, then narrowing forwards, in front, the front margin included, regularly rounded. Two transverse grooves, very little developed, both of them nearly straight, the anterior groove about in the middle, the posterior one considerably nearer to the hind margin than to the first. The posterior corner of cephalothorax *not* produced into a spine-like tubercle laterally. The surface glossy, minutely and densely granulate, with *no bigger tubercles*. The hairs truncate and dentate.

Abdomen.—All tergites divided longitudinally by a fine stripe. *No tergites produced into spine-like tubercles laterally;* there are some traces of keels on several of the tergites, but they are very little developed. The surface glossy, minutely and densely granulate. The hairs very short, but strongly clavate; no tactile hairs on the last segment. The sternites divided longitudinally, like the tergites, glossy and shagreened, with fine, pointed hairs.

Palps a little longer than the body (with abdomen somewhat extended), slender. Coxa glossy, a small central area nearly smooth, around this area slightly granulate. The other joints glossy, slightly

and densely granulate, except the fingers. The hairs of trochanter and femur more or less distinctly clavate, those of the other joints dentate, all of them short, those of the fingers fine and pointed, partly long ones. Trochanter with a distinct stalk, roundish, strongly convex in front, behind with a small tubercle, above with a rounded protuberance, pointing backwards. Femur with a distinct stalk, about 3½ times as long as broad, nearly parallel-sided, the front margin straight, behind somewhat obliquely widened from the stalk, the hind margin very little convex or nearly straight, and rounded only at base and tip. Tibia with a distinct stalk, considerably shorter and only a little broader than femur, twice as long as wide, somewhat obliquely shaped, the outer side proximally nearly straight, somewhat convex towards the extremity, the front side regularly and moderately convex, tibia in all only a little tapering towards the tip. Hand with a distinct stalk, and regularly rounded base, about 1½ times as broad as tibia, exteriorly slightly convex, the inner side more strongly so, passing obliquely into the fingers. Fingers moderately robust, considerably curved, about as long as the hand, with no accessory teeth.

Mandibles.—Galea very minute, pointed and simple.

Legs.—Coxæ glossy and nearly smooth; the other joints more or less granulate. Coxa IV. slightly curved, with distinct coxal sac opening. The hairs partly clavate, partly simple. *All claws* normal and simple. The species belongs to the *cancroides* group.

Length 1·75 mm. (with abdomen extended); width of abdomen 0·74 mm.

Measurements.—Cephalothorax: long. 0·60; lat. 0·60. Femur: long. 0·52; lat. 0·16. Tibia: long. 0·36; lat. 0·18. Hand: long. 0·39; lat. 0·24. Fingers: long. 0·43 mm.

♀. The female, in all essentials, the sexual apparatus excepted, resembles the male, but is of somewhat larger size, about 2 mm. long. Galea small, though a little stronger than that of the male, with some small teeth at the tip. Claws simple.

Habitat.—Cape Province. King William's Town Div.: Pirie Forest, where it was found by the Rev. R. Godfrey, abundant on yellow-wood. I have examined 11 ♂, 7 ♀, and 8 young.

Note 1.—This species is among the smallest of the *cancroides* group; it is distinguished by having only traces of keels on the tergites, and neither these nor the cephalothorax have the corners laterally produced; the claws in both sexes are normal and destitute of teeth.

Note 2.—The Rev. R. Godfrey in a letter remarks on this species as follows :—

"This is a true forest species, which occurs on yellow-wood everywhere in Pirie Forest. It is not necessary to give dates for this species. June and November are the only months in which I have not found it, and the reason undoubtedly is because I have not purposely looked for it then. This species moults in a nest of silk with dust-covered rim, appressed between two flakes of bark and measuring 1·5 mm. across. On December 12, 1907, I found the discarded moult in one nest, along with the creature itself; and on March 13, 1908, I took a newly moulted individual out of a nest. The ♀ makes no nest for reproductive purposes, but lives a free life at the time she is carrying the larval mass attached to the under side of the abdomen. Dates December 12, 1907, and February 12, 1908."

14. Cheliferus mucronatus Tullgren.

Cape Province. Uitenhage Div.: Witteklip, Van Staden's River (I. L. Drège), 2 ♂, 1 ♀, under bark of the sneezewood-tree.

A great number of specimens of this species have been collected in King William's Town Div.: Pirie, Cwencwe, and Burnshill (nearly all of them by Miss Fanny Ross, and a single one by the Rev. R. Godfrey); they have been taken, according to Mr. Godfrey, on blue gum, red gum, apple-tree, and *Rhus rillosa*. I have examined 8 ♂, 8 ♀. The species has also been taken in Victoria East Div.: Lovedale (Godfrey), 2 ♂, on blue gum; Stutterheim Div.: Weltondale (Miss Ross), 3 ♂, 1 ♀, on mimosa.

(I have also seen 1 ♂, 1 ♀ from Port Elizabeth (I. L. Drège), belonging to the Albany Museum, Grahamstown.)

Mr. Godfrey writes of this species: "A tree species. As the above data show, nearly every specimen I have has been collected for me by Miss Fanny Ross, Pirie. She obtained a female with its larval mass attached, living free on a blue gum, November 18, 1908."

Note.—Tullgren says, in his description of this species, that the cephalothorax and palps are not glossy; all specimens I have examined are somewhat glossy, yet I have no doubt that my specimens belong to this species. An excellent character for the males of this form is the spine of the antero-exterior corner of coxa IV. Not always as many as 8 tergites (as Tullgren states) are produced into a spine-like tubercle and keeled; sometimes fewer may be so produced.

15. Chelifer paradoxus nov. sp.

♂. Two large eyes, one on each side.

Colour.—Cephalothorax and tergites brown, palps reddish brown, the under side and legs pale brownish.

Cephalothorax much longer than wide (about as 4 : 3), nearly parallel-sided till towards the eyes ; but the lateral contour is rather irregular on account of the transverse grooves being a little produced laterally; near the eyes the cephalothorax is a little rounded, the front margin nearly straight. Two transverse grooves very well developed, the anterior one about in the middle, nearly straight, very broad and deep, somewhat widened laterally; the posterior groove at about equal distance from the hind margin and the first groove, nearly straight too, less developed ; the posterior corners of cephalothorax *not* produced into a spine. The surface nearly glossless, coarsely granulate, but with no bigger tubercles: along the front margin a row of distinctly clavate hairs; the other hairs are apparently broken.

Abdomen long and slender. All tergites divided longitudinally by a fine stripe. All tergites (except the last one) have a *feeble, dark lateral keel.* The surface glossless and coarsely granulate, along the hind margin each tergite is provided with short and strongly clavate hairs ; no tactile hairs on the last segment. The sternites divided longitudinally, glossy and shagreened, with fine and pointed hairs, and additionally on the sclerites 6–9 provided *with areas of bristles* The species belongs to the *subruber* group.

Palps somewhat longer than the body (with abdomen extended), thus long and slender. Coxa glossy and slightly granulate or nearly smooth ; the other joints glossy below, above nearly glossless, more or less granulate, except the fingers. The hairs of the inner side (especially those of trochanter and femur) distinctly clavate, the other hairs dentate. Trochanter with a rather long stalk, a little longer than wide, on both sides slightly convex, above with a strong protuberance, which basally is nearly perpendicular, distally sloping towards the extremity. Femur with a distinct stalk, about four times as long as broad, thus rather slender, in front distinctly *concave*, behind gradually widened from the stalk, the hind margin distinctly convex, a little narrowing towards the tip, but femur on the whole cannot be said to be club-shaped. Tibia with a rather long stalk, about as long and as wide as femur, club-shaped, behind in the greater central part slightly concave, convex towards the tip, in front gradually widened from the stalk, the inner side distinctly convex. Hand with a distinct stalk, and regularly rounded base, only a little

broader than tibia, exteriorly nearly straight, in front slightly convex or nearly straight, passing a little obliquely into the fingers. Fingers robust, slightly curved, a little shorter than the hand (4 : 5).

Mandibles.—Galea small and simple.

Legs more or less granulate, with partly clavate, partly dentate, and simple hairs. Tibia of IV. pair very broad (high), being very convex on the inner side. Claws small and simple.

♀.—The female has the palps somewhat more robust, tibia with no concavity exteriorly, and the tibia of IV. pair of legs slender. Galea of the single specimen broken.

Length (with abdomen extended) 2·22 mm., width of abdomen 0·79 mm.

Measurements.—Cephalothorax: long. 0·79; lat. 0·57. Femur: long. 0·72; lat. 0·19. Tibia: long. 0·64; lat. 0·20. Hand: long. 0·57; lat. 0·23. Fingers: long. 0·46 mm.

Habitat.—Cape Province. King William's Town Div.: Ntaba Kandoda (R. Godfrey), 1 ♂ (type); Transkei, Butterworth: Blythswood, 1 ♂; Kei Bridge, 1 ♀ (R. Godfrey).

Note.—Though this species belongs to the *subruber* group, it has the tergites slightly keeled, a thing till now observed only in the species belonging to the *cancroides* group, with the exception of a South American species, *Ch. satanas* With, also belonging to the *subruber* group. The keels in *Ch. paradoxus* are certainly only slightly developed, and are seen best when the animal is examined in alcohol, but they are nevertheless present. The species, on account of the slender palps, has much in common with several other forms of the *subruber* group, for instance *Ch. angulatus* Ellingsen, but that species is much larger and has still more slender palps.

16. Chelifer sculpturatus Lewis.

Transvaal Province: Johannesburg (H. A. Fry), 1 ♂; Natal Province: Richmond (Rev. J. R. Ward), 1 ♀, 1 jun., in beehives; Pietermaritzburg (C. Fuller), 1 ♂, 1 ♀.

The immature specimen from Richmond has the exceedingly coarse granulation, which is found on the palps in the adult specimens, much less developed, and present only, in a smaller degree, on the inner side of femur and tibia. I have not been able, with certainty, to detect eyes, either in the adult specimens or in the immature one. It is interesting to note that the specimens from Richmond were taken in beehives, as were the type specimens.

During the printing I have received from Mr. Godfrey a couple of

palps of this species, taken in Griqualand East: Isolo by Miss Fanny Ross, June, 1912, in beehives.

17. Chelifer segregatus Tullgren.

Cape Province. Clanwilliam Div. (C. L. Leipoldt), 2 ♀.

The femur of the palps is somewhat more robust than should be the case according to Tullgren's figure, but in all else the specimens agree well with the description.

18. Chelifer Simoni Balzan.

Cape Province. Stellenbosch Div.: Faure (W. F. Purcell), 1 ♀.

I have also examined 5 ♂ and 14 ♀, sent by the Rev. R. Godfrey, who gives the following localities: Victoria East Div.: Lovedale, many under stones in manure heap in company with *Ch. Kewi*, and some on gum-tree. King William's Town Div.: Pirie, two under stones; Cwencwe, eight on dead tree; Burnshill, one on mimosa. Griqualand East, Isolo (Miss Fanny Ross), 3 ♂, 2 ♀.

Mr. Godfrey gives the following details on its habits: "This species is interesting because of its two distinct habitats, on trees and on the ground. It makes a nest for moulting purposes, and the ♀ makes a nest for reproduction. The latter nests I have found on January 1, 1908, on a tree; diameter of nest, 4·5 mm. I have seen this species carrying as prey another false-scorpion in its cheliceræ."

19. Chelifer tumuliferus Tullgren.

Cape Province. Cape Peninsula: Bergvliet (W. F. Purcell), 4 ♂, 3 ♀.

Note 1.—When Tullgren, in his description of this species, says, "Am Innenrande hat es (das Femur) nahe am Stielchen einen charakteristischen, kleinen Knollen. Vor diesem Knollen ist das Glied sehr schwach *konvex*," I suppose the last word is a misprint for "*konkav*," to judge from the figure. In the above-mentioned specimens (♂ ♂) the concavity is indeed quite considerable, except in one specimen, where it is less pronounced and very like Tullgren's figure. The stalk of the femur, too, is better marked out in my specimens than is indicated in Tullgren's description and figure. But I have no doubt that the specimens from Bergvliet belong to Tullgren's species.

To the description given by this author I shall make some additional remarks: Tullgren puts a mark of interrogation as to his specimen being a ♂; I do not think this is necessary, as I will try to

show in the following. I feel quite sure that the species belongs to the *subruber* group, more especially as the males, examined by me, have bristled areas on 5 or 6 sternites, one small area on each side near the median line: these areas are quite small (contrary to what is the case in most other species of the *subruber* group) and with proportionally few bristles.

Together with these males were some females which in all essentials resemble the males, except in the *femur being normally shaped, with no basal protuberance on the front side of femur;* tibia and hand are (as usual in ♀) somewhat more robust, and the fingers proportionally somewhat shorter; femur and tibia somewhat more strongly granulate; femur is in front proximally slightly convex, distally slightly concave.

Note. 2.—The females mentioned above very much resemble the female which Tullgren has described under the name of *Chelifer lamellatus*. Tullgren, it is true, says of this species that it has only "deutliche Augenflecke," thus no real eyes, but eye-spots and real eyes are often easily confounded. What Tullgren means by "Lamellen" in this species I have not quite been able to realise. If this suggestion of mine is right, *Ch. tumuliferus* may be ♂ and *Ch. lamellatus* ♀ of the same species. But I dare not at present unite the two.

20. Chelifer Walliskewi nov. sp.

♂. Two eyes of moderate size, one on each side.

Colour.—Body and palps dark reddish brown, the keels of abdomen blackish red, the under side, legs, and mandibles palish brown.

Cephalothorax distinctly longer than wide behind, gradually narrowing forwards, rounded in front, the front margin slightly convex. Two very prominent transverse grooves; the posterior one, especially, is very broad and deep; the anterior groove about in the middle, straight, somewhat widened laterally; the posterior one considerably nearer to the hind margin than to the first, distinctly curved forwards and, like the first, widened laterally. The hind corner of cephalothorax produced into a small, brown, spine-like process, sometimes rather indistinct. The surface somewhat glossy, densely granulate, and provided additionally with scattered bigger granules; these are laterally bigger and pointed. The very few hairs (which are left?) truncate and slightly dentate.

Abdomen.—The three anterior tergites and the last one entire, the other tergites divided longitudinally by a fine stripe; yet in one

specimen the last tergite is partly divided. The 7 or 8 anterior tergites are provided with lateral keels and produced posteriorly into a spine-like process; this process is rather small. The surface somewhat glossy and slightly granulate. The hairs are mostly broken and lost, some left are short and truncate; at the tip of the lateral spine-like process there is (when not broken) a hair, slightly clavate. All sternites divided longitudinally; but the division of the last sternite is only partial; the surface somewhat glossy and shagreened. The hairs broken or lacking.

Palps (when abdomen contracted) longer than, or (when abdomen extended) as long as the body; moderately slender. Coxa glossy and slightly granulate; the other joints, too, glossy and granulate, but in addition there are on some of the joints bigger and pointed granules; for instance on trochanter, except on the under side, on the femur above, but especially on the front side some very big ones, also some smaller ones on the hind surface; on the inner side of tibia, too, some bigger granules. Fingers smooth. The clothing of hairs is rather scattered, consisting of short, truncate, and a little dentate hairs, curved forwards or nearly depressed; on several of the bigger granules the hairs are rather clavate. Trochanter with a distinct stalk, somewhat longer than wide, oblong, in front and behind moderately convex, above with a rather strong and rounded protuberance. Femur with a distinct stalk, about 5 times as long as wide at the tip, the inner side straight or slightly concave, behind gradually widened from the stalk, the outer side slightly convex, femur in all a little curved and slightly club-shaped, viz., gradually increasing in width distally. Tibia with a short but distinct stalk, decidedly club-shaped, distinctly shorter than femur, and at the extremity about as wide as the femur, behind nearly straight, only somewhat convex near the extremity, or slightly convex; in front nearly straight, a little sinuated near the tip. Hand with a very short stalk, and the base obliquely rounded, oblong, as long as and about 1½ times as wide as tibia, exteriorly slightly convex or sometimes nearly flat, interiorly somewhat more strongly convex, more or less gradually passing into the fingers. Fingers about as long as the hand or a little shorter, considerably curved, rather slender, with no accessory teeth.

Mandibles.—The galea was broken in all specimens examined.

Legs.—All joints glossy and more or less granulate. Coxa IV. curved (as usual in the *cancroides* group), on *the exterior corner provided with a brown, rounded, somewhat irregular spine-like process;* this process, strictly speaking, is situated on the back of the joint,

thus sometimes difficult to see; coxal sac present. *Trochanter I. and II. posteriorly produced into a broad, rounded process*, most pronounced in trochanter I. Femur IV. on the back in the proximal half provided with *several small, irregular spines* (or granules). *Femur III. and IV. at the tip exteriorly and interiorly produced into a point* (or spine). *Tarsus I. with the tip exteriorly produced into a very strong point*, which is sometimes divided. Claws with no teeth, rather small; one claw of I. pair normal, the other very small and nearly straight. The species belongs to the *cancroides* group.

♀. The female, beside the sexual apparatus, naturally differs from the male in lacking the keels and the spine-like projections of the cephalothorax and the tergites, and in having coxa IV. normally shaped with no coxal sac. In addition, the tarsus of pair I. is normal, trochanter I. and II. have their processes less developed; the process of the back of coxa IV. is lacking, and femur III. and IV. are not produced apically. One female had one of its galeas unbroken: it was rather small with some apical teeth.

Length (♂) 3·86 mm.; breadth of abdomen 1·57 mm.

Measurements (♂).—Cephalothorax: long. 1·14; lat. 1·00. Femur: long. 1·36; lat. 0·28. Tibia: long. 1·07; lat. 0·31. Hand: long. 1·07; lat. 0·49. Fingers: long. 0·97 mm.

Habitat.—The types of this species were collected by the Rev. R. Godfrey at Transkei, Butterworth: Blythswood, Bushman's Rock, July 13, 1909, under stones; I have examined 3 ♂ and 2 ♀ from this locality. It has also been taken by Mr. Godfrey in King William's Town Div.: Green River, 1 ♀. In the collection from the South African Museum also some specimens of this species were present, though mostly very badly preserved, viz.:—

Cape Province. Swellendam Div.: between Stormevlei and Brakfontein Farm (Zonder Einde Mountains) (W. F. Purcell), 1 ♂, 4 ♀ (adult), broken. Oudtshoorn Div.: In the caves at Cango (W. F. Purcell), 4 ♂, 1 ♀ (young). Cape Peninsula (W. F. Purcell), 1 ♂ (young).

The specimens from Cango Caves and Cape Peninsula certainly belong to this species; they are rather immature, but the sexual apparatus, at least externally, seems to be well developed. But they have not the dark colour of the adults, and the bigger granules of the palps are not yet well developed.

This species is very well distinguished by several characters, given in the description. It belongs to those of the *cancroides* group having slender palps, but cannot well, as regards the males, be confounded with any hitherto described species.

21. Cheiridium museorum Leach.

Cape Province. King William's Town Div.: Pirie Forest (R. Godfrey and Miss Fanny Ross), 2 specimens; on yellow-wood.

Note.—The capture of this species and the next one in South Africa, in a wild state, is indeed very astonishing, but my comparison of them with European specimens of both species has left me no doubt that they do indeed belong to the European forms of this genus. As will be seen from the Introduction, *Ch. museorum* is in Europe found in or near inhabited places, while the other species is only taken in a wild state. One of the specimens I have examined was a male.

22. Cheiridium ferum E. Simon.

I have examined, of this species, 6 specimens from South Africa, males and females. According to Mr. Godfrey the localities were the following:—

Victoria East Div.: Lovedale, Alice. "Many nests under the bark of gum-trees. The nests, made of white silk only, are very conspicuous; one surface of the nest is attached to the bark, and the other surface lies over this attached layer" (Godfrey in litt.). King William's Town Div.: Pirie Forest, common on yellow-wood.

As to the occurrence of this species in South Africa, see the Note to the preceding one.

23. Cheiridium subtropicum Tullgren.

Cape Province. Victoria East Div.: Woodstock, Alice, 2 specimens.

"Both were taken on yellow-wood. One was found free, and the other was inside a dust-covered nest, and was carrying four larval young. Not met with again" (Godfrey in litt.).

24. Feaella mucronata Tullgren.

Cape Province. Cape Peninsula: St. James (W. F. Purcell), 2 ♂.

Among the characters in which this species differs from *F. mirabilis* Ellingsen, the mandibles are much larger and almost entirely visible from above, while in *F. mirabilis* they are entirely covered by the anterior part of cephalothorax; the cephalothorax is also considerably narrower proportionally to the width of abdomen than is the case in the West African species.

The characteristic recess ("Vertiefung") which Tullgren describes

as present between the two anterior pairs of coxæ in the *female* I cannot detect in the two *males* I have examined; perhaps this feature is found only in the females. The projection of the base of the femur of the palps is small, of smaller size than Tullgren seems to indicate, but the protuberance of the trochanter is very large. The colour I should prefer to call bricky as in *F. mirabilis*.

25. Garypus capensis nov. sp.

♀. Four large eyes, two on each side, about half a diameter from one another, situated (as usual in *Garypus*) on an eminence; the anterior eye looking forward and obliquely upwards, the posterior one showing directly backwards; the anterior eye about 5 diameters from the front margin of cucullus.

Colour.—Cephalothorax dark chestnut, with a large blackish red, rather glossless central spot near the hind margin. Palps chestnut with the fingers somewhat darker. The tergites spotted; the ground colour pale greyish brown, each sclerite with one large brown spot laterally and another, somewhat smaller, brown spot at a little distance from the median line; the anterior two or three tergites have the spots somewhat effaced, their colour being rather brownish on their whole surface. The sternites have their colour distributed in the same manner as the tergites, but less regularly and with the spots of a paler colour.

Cephalothorax has the hind margin a little longer than the length of cephalothorax, and is on the whole somewhat triangular, strongly and gradually narrowing forwards from the posterior corner to the contraction which forms the cucullus; the latter is very long and very sloping (genuine *Garypus* cephalothorax); the front margin with very conspicuous sinuation; cucullus with deep and conspicuous longitudinal groove from off the eyes, but this groove terminates before reaching the front margin. No transverse groove visible. The surface very glossy (except the dark spot posteriorly, which is somewhat less glossy) and coarsely granulate, laterally most coarsely. The hairs (most of them broken) of cephalothorax moderately long, robust, broad, somewhat clavate.

Abdomen.—Tergites divided very distinctly by a rather broad longitudinal band, except the first and the last one. The surface rather glossless, coarsely granulate, provided with hairs of the same kind as those of cephalothorax (mostly broken). The sternites are also divided longitudinally, but less distinctly; less coarsely granulate, a little glossy; the hairs like those of the upper side.

Palps distinctly shorter than the body, but abdomen is very much extended. The surface glossy and coarsely granulate all round. The hairs are longer than usual in *Garypus*, thick (as in cephalothorax) and distinctly widened apically, thus clavate, equally strong on both sides of the palps. The fingers have only fine and pointed hairs. Coxa somewhat produced in front, but the extremity is truncate. Trochanter with a distinct stalk, globose, semicircular in front, behind with two protuberances, an upper one and a lower one: the upper protuberance is much rounded and is the larger one, the lower protuberance of smaller size and not so much rounded. Femur with well-pronounced stalk, about $2\frac{1}{2}$ times as long as wide, robust, after the rounding at the stalk with the inner side nearly straight or slightly convex, behind roundly widened from the stalk, the posterior side distinctly convex. Tibia conspicuously shorter than, and as broad as, femur, with a moderately long stalk, behind distinctly convex, most strongly so towards the extremity, in front gradually widened from the stalk, somewhat swollen in the central part, somewhat sinuated towards the tip. Hand with a distinct stalk, about $1\frac{1}{3}$ times as wide as tibia, with obliquely rounded base, the outer side slightly convex, the inner side somewhat more strongly so. Fingers very robust, curved, much shorter than the hand (3 : 4).

Mandibles of very small size. Galea small, from the middle divided into three simple but rather strong branches.

Legs more or less granulate, with clavate hairs; only tibia at the extremity and the tarsi have in addition some slender hairs. Femur I. and II. have *pars basalis distinctly shorter than pars tibialis*, the basal part being thus trochantin-like, with distinct articulation; first tarsal joint distinctly longer than the second; tibia a little longer than tarsus. Tibia III. and IV. distinctly longer than the corresponding tarsi. Coxa IV. rather long with the hind margin straight. Arolium longer than the claws; the latter are simple.

The species is a large and robust one. Length 5·4 mm.; width of abdomen 2·3 mm.

Measurements.—Cephalothorax: long. 1·15; lat. behind 1·35. Femur: long. (excl. of the stalk) 1·15; lat. 0·50. Tibia: long. (excl. of the stalk) 0·93; lat. 0·50. Hand: long. 1·15; lat. 0·67. Fingers: long. 0·83 mm.

Habitat.—Cape Province. Malmesbury Div.: Stompneus Bay in St. Helena Bay (J. E. C. Goold), 1 ♀.

Note.—Of special interest, in this species, is the construction of femur I. and II., having the basal part shorter than the tibial part: in spite of this it is necessary to refer the species to *Garypus* and not

to *Garypinus*, the shape of cephalothorax and of the cucullus being so decidedly *Garypus*-like, and this must certainly be of more weight than the construction of femur I. and II. mentioned above. In spite of the palpal coxa being somewhat produced (but truncate at the extremity), the species must, I suppose, belong to the *Garypus minor* group and not to the *saxicola* group, but in that case it will be one of the largest, if not the largest, species of its group.

26. Garypus impressus Tullgren.

Cape Province. King William's Town Div.: Pirie Forest (R. Godfrey), 2 ♀ adult, 2 very young specimens. Griqualand East: Isolo (Miss Jessie K. Mackinnon), 1 young.

Note 1.—I have examined the five above specimens which I refer to this species. The adult specimens are of somewhat larger size than Tullgren's—about 3 mm. against Tullgren's 1·75 mm.—but the characteristic transversal impression of the hand will, I think, decide their belonging to Tullgren's species. Beside the difference in size there are, however, still some characters to be remarked upon in Godfrey's specimens: Cephalothorax is of a dark brown colour, but has (well pronounced even in the young specimens) a paler coloured triangular area extending half-way to the eyes. Tullgren has in his figure given the femur and the tibia of the palps a very irregular appearance (he mentions no such thing in the description); Godfrey's specimens certainly have also on the inner side of femur and tibia some bigger granules, but not approximately on the same scale as Tullgren's figure. But this carries no great weight, being just a character in which some species of *Garypus* (for instance, *G. minor* L. Koch) vary very much.

Note 2.—The Rev. R. Godfrey gives in a letter some very interesting information on this species: "This is a ground-loving species, living under stones in the forest. It makes nests for the purposes of moulting and reproduction. The nests are hemispherical, attached to a stone; they are made of earth particles, lined with silk, with a silk layer over the enclosed surface of the stone as well.

"I have found individuals moulting in nests on April 16 and September 19, as well as half-grown young ones in nests on December 9. I have found nests with females carrying their larval mass on September 19 and December 9.

"On September 19, 1908, I obtained a number of these creatures, and, having no tube with me, I put them alive in a roll of paper. On reaching home, I found an adult eating a colourless moulting

individual. While sucking its prey, the *Garypus* used its cheliceræ to hold it, having the finger with the galea on the under side of the prey; but when changing the position of the prey it used its large nippers, removing the prey from its cheliceræ, turning it about and then pressing it again as far as possible into both cheliceræ, and then removing its large nippers from the prey. In walking, the cannibal *Garypus* carried its prey in its cheliceræ. Once I lost sight of the feeding *Garypus*, and found it prowling on the platform of the microscope; on touching it, I caused it to drop its prey from its cheliceræ, but, on replacing it in the observation tray and putting the dried-up prey beside it, I soon saw it fearlessly pick up the shrivelled prey again. It picked it up with its left pedipalp and held it at arm's length while it cleaned the fingers of its right pedipalp in its serrula. It then transferred the prey to its cheliceræ and marched off again with it, keeping its pedipalps stretched out in front on either side and the nippers expanded vertically as it walked. How slow the process of sucking the juices of the prey was may be judged from the fact that my observations extended over four hours, and that even then the *Garypus* had not finished its meal."

27. Garypus minutus Tullgren.

Tullgren has (*loc. cit.*) described a species, *Garypus minutus*, on, as he says, a female "wahrscheinlich nicht geschlechtsreif," and of very small size, 1·38 mm. I suppose, however, that he has had before him not a young female, as he states, but a young male, the galea being recorded to be pointed and simple. This species is very well characterised and easily distinguishable by the shape of the hand of the palps; this has a form somewhat like a rectangle, with the inner and outer sides rather straight. In the collection under consideration there are some specimens having the hand of this shape and also as regards the other characters agreeing well with Tullgren's description, but these specimens are very young and form the transition to more adult stages which have some characters lacking in the younger stages, and, therefore, not mentioned in Tullgren's description. Be it at once understood that the hand may vary very much, not only according to the stage of development, that is to the size, but also in the same stage.

One of the characters alluded to above consists in the hand, especially in more adult specimens, at the extremity (thus at the base of the fingers) being contracted, often nearly perpendicularly to the fingers, more or less strongly, either on both sides, interiorly and exteriorly, or only on the inner side (this contraction in the

present species must not be confounded with what occurs in another species, *Garypus impressus* Tullgren, mentioned above, which has a transversal impression *across* the base of the fingers). This contraction in *G. minutus* makes the hand still more angular than is the case in younger specimens, cf. Tullgren's figure. The central part of the inner side is, however, generally nearly straight, or may sometimes be somewhat convex. The galea has the usual difference in *Garypus:* small and simple in ♂, larger and provided with some teeth in ♀.

That the species may be an immature stage of *Garypus olivaceus* Tullgren (= *G. senegalensis* Balzan), as Tullgren somewhere suggests, I think quite out of the question.

I mentioned above that this species varies very much as to the hand, especially in the different stages of development, and therefore think it will be of interest to give some remarks on the specimens from different localities, as follows:—

Cape Province. George Div.: Montagu Pass (W. F. Purcell), 1 very young; typical,* yet with no trace of real contraction of the hand.

Mossel Bay (W. F. Purcell), 1 ♀ very young; typical, but with a slight indication of contraction.

Clanwilliam Div.: Waterfall Kloof, near Boschkloof (R. Pattison), 1 ♀ adult; the contraction distinct on the inner side, less distinct on the outer side of one hand; scarcely visible on the other hand.

Clanwilliam Div.: Van Rhijndorp Road (C. L. Leipoldt), 1 ♀ adult; nearly typical, but with distinct contraction on both sides.

Robertson Div.: Kogman's Kloof (W. F. Purcell), 1 ♂; nearly typical, distinct contraction on both sides.

Caledon (W. F. Purcell), 2 ♀ adult; distinct contraction on both sides in one specimen; in the other very slightly behind.

Bredasdorp Div.: Marcus Bay (H. A. Fry), 1 ♂, 1 ♀, both adult; though the specimens are rather well developed, the contraction is proportionally less pronounced than usual in other examples of the same size.

Swellendam Div.: Between Stormsvlei and Brakfontein Farm (Zondereinde Mountains) (W. F. Purcell), 1 ♀ adult; nearly typical, but contracted at the inner side of the hand.

Besides these, there were in Godfrey's collection a couple of specimens, one adult from Victoria East Div.: Lovedale, August, 1910, certainly belonging to this species, and another very immature one from King William's Town Div.: Pirie, rather doubtfully referable to

* I use the expression "typical" here in accordance with Tullgren's description and figure.

this form ; the latter was taken from a nest of a grass warbler (*Cisticola lais* Sharpe), December 19, 1910.

During the printing I received from Mr. Godfrey 2 specimens, ♂ and ♀, from Griqualand East : Isolo, taken by Miss Fanny Ross, June, 1912.

In Godfrey's collection there are several young examples which in all essentials resemble the above species except as regards the shape of the hand. While the typical form has the inner half of the hand rather broadened, the central part of the inner side is, nevertheless, rather straight or, at most, a little convex ; but Godfrey's specimens have the inner part of the hand so much broadened with no straight central line, that the hand, on account of this, gets a triangular appearance. Till more specimens are found, I shall call this form

var. TRIANGULARIS,

a name which, in case the form should prove to be a new species, would be a characteristic one. For the hand is indeed most characteristic and peculiar. I will add, that in one specimen a slight indication of a contraction of the hand is present, indicating relation to the typical form.

I have examined 9 specimens, according to Mr. Godfrey, taken in the following localities :—

Cape Province. King William's Town Div.: Izeli, 5 in nests; Frankfort Hill, 3,000 feet, 1 specimen under a stone. Transkei, Butterworth : Blythswood, Bushman's Rock, 1 specimen. Orange Free State Province : Bloemfontein, Naval Hill, 2 specimens.

28. Garypus Purcelli nov. sp.

Four small eyes, two on each side, about 1 diameter from each other, but not situated on a common eminence; the anterior eye about 3 diameters from the front margin of the cucullus.

Colour.—The adult specimen (♀) : cephalothorax and palps dark brown, the tergites palish brown, with no distinct colour spots. The other specimen, immature, is on the whole palish brown.

Cephalothorax considerably longer than wide (11 : 8) ; the lateral margins, from behind till midway, nearly parallel-sided, the anterior half regularly rounded, *with no distinct contraction* at the base of the cucullus, the front margin short and distinctly sinuated in the middle. Cucullus is thus *very little pronounced* and *rather short*. Near the hind margin a straight transverse groove. The surface distinctly and

regularly granulate, nearly glossless. The hairs are broken. Cephalothorax is, on the whole, more like that of a *Garypinus* than of a *Garypus*.

Abdomen.—No longitudinal division of the tergites is visible. The surface distinctly granulate and nearly glossless. The sternites are not divided; they are slightly shagreened and glossy. On one specimen a couple of tactile hairs are present on the last segment. No other hairs were found (probably broken off).

Palps about as long as the body with abdomen extended. The surface of all joints (coxa included) nearly glossless, distinctly and regularly granulate all round, except the fingers, which are smooth and glossy. The hairs are nearly all of them broken (or lacking), one or two hairs of one hand are very short and slender. The fingers, on the contrary, have a proportionally dense clothing of long and pointed hairs, among them some long tactile ones. Coxa in front somewhat rounded. Trochanter with a distinct stalk, about as long as wide, very convex in front, behind with two tubercles, an upper one and a lower one, the lower one more central or basal, the upper one more distal, both rounded. Femur with a distinct stalk, nearly four times as long as wide (thus rather slender), a little widened from the stalk behind as well as in front, slightly convex on both sides, only slightly narrowing towards the extremity. Tibia with a distinct stalk, somewhat club-shaped, the outer side slightly convex proximally, distally more strongly so, the inner side regularly convex on the whole length; tibia is only slightly narrowed at the tip, considerably shorter and a little broader than femur. Hand with a distinct stalk, with the base oblique and only a little rounded, the outer side nearly straight, except at the passage into the fingers (in the younger specimen the outer side of the hand is somewhat convex), the inner side strongly convex; the hand is about $1\frac{1}{2}$ times as wide as the tibia. Fingers rather slender, slightly curved and a little longer than the hand (5 : 4).

Mandibles of small size. Galea rather robust, at the tip indistinctly tridendate.

Legs glossy and slightly granulate or nearly smooth, with simple, pointed hairs. Femur I. and II. have the basal part nearly twice as long as the tibial one, with distinct articulation; the tarsal joints about of equal length; the whole tarsus only a little longer than the tibia. Tibia III. and IV. are only a little shorter than the tarsus. Coxa IV. rather short with the hind margin rounded. Arolium distinctly longer than the claws; these are simple.

Length of the adult specimen, 3·3 mm.; width of abdomen, 0·86 mm.

Measurements.—Cephalothorax: long. 0·79; lat. 0·57. Femur: long. 0·76; lat. 0·20. Tibia: long. 0·61; lat. 0·24. Hand: long. 0·57; lat. 0·36. Fingers: long, 0·71 mm.

Habitat.—Cape Province. Beaufort West (W. F. Purcell), 1 ♀, 1 jun.

Note 1.—The first specimen is adult and well-coloured, and is the type, but there is no doubt that the other specimen also belongs to the same species, although it is of paler colour, less developed and of smaller size.

Note 2.—I have been in great doubt as to the genus to which this species ought to be referred. The anterior part of cephalothorax, which is rounded, with no or, at least, little pronounced cucullus, making cephalothorax not much *Garypus*-like, seems to exclude it from the genus *Garypus*. But other characters—for instance, the strong granulation and the construction of the two anterior pairs of legs (which is quite *Garypus*-like)—indicate it to be excluded from the two other possible genera, *Garypinus* and *Olpium*, at least as these are established at present. For further remarks on this subject, see Note to *Garypus capensis*, above; but it may be said that the more species that are described of the family *Garypidæ*, the more difficult becomes the arrangement of the genera, so that the safe establishment of these certainly cannot yet be undertaken. I have, however, at least provisorily, referred the new species to *Garypus*, in spite of the construction of the cephalothorax.

29. Garypus senegalensis Balzan.

1891. *Garypus senegalensis* Balzan, **1.** p. 535.

1907. *Garypus olivaceus* Tullgren, **22.** p. 63.

Cape Province. Cape Peninsula: Wynberg (H. Beard), 1 ♂ jun.; Table Mountain, near Platteklip (W. F. Purcell), 1 ♀, of rather pale colour; St. James, on seashore and on mountain-side (W. F. Purcell), 2 ♀ adult and 2 jun.; Kenilworth Flats (Cyril French), 1 ♂; Cape Town, Museum Garden (R. M. Lightfoot), 1 ♂ jun. (the sexual region already dark); Plumstead Flats (W. F. Purcell), 2 ♂ adult, 2 immature, very young; Newlands (L. Péringuey), 1 ♂, 1 ♀, variety (see below); Stellenbosch (L. Péringuey), 1 ♀ jun. Natal Province: Richmond (Rev. J. R. Ward), 2 ♂ jun., 1 ♀. Transvaal Province: Johannesburg (W. F. Purcell), 1 ♀.

In the Rev. Godfrey's collection:—

Cape Peninsula: Foot of Table Mountain, 1 ♀ with larval mass in nest under stone, November 12, 1907. Orange Free State: Bloemfontein, Naval Hill, 1 ♀ jun.

"This is a ground species, living under stones. The pregnant ♀ makes a nest like that of *Obisium muscorum*, but of much rougher material, with the usual lining of silk, attached to the under side of a stone" (Godfrey in litt.).

Note.—After having examined a number of specimens from South Africa, I have no doubt that *G. olivaceus* Tullgren is the same species as *G. senegalensis* Balzan. Balzan's figure of this species agrees very well, but there are some remarks in Balzan's description which need to be taken into consideration. Balzan says of the cephalothorax: "Sulco transverso, distincto." Tullgren, on the contrary: "Querfurchen fehlen, die erste Furche ist aber angedeutet." In another place, however, Tullgren says that the groove is "ziemlich deutlich." In the South African specimens it may be different: in some of them the groove is more distinct than in others. I should prefer to express it thus: the transverse groove exists, but may sometimes be only a little pronounced. Balzan says of the tibia of the palps: "Superne et interne post petiolum, vix gibbosum." Tullgren mentions no such thing, but this gibbosity is certainly present also in his specimens. Balzan's figures of the galea show that he had before him both ♂ and ♀, though he mentions nothing about the sexes; Tullgren had only ♀.

The male has, however, some characters which Tullgren has had no opportunity of seeing, not having had males for examination, nor has Balzan observed these characters. Besides the shape of the galea (observed by Balzan), which in the male is small and pointed, with no teeth (Balzan seems to have drawn it rather too robust), these characters are the following: the sexual region of well-developed specimens is of a dark reddish-brown colour, sufficiently dark to be seen with the naked eye; femur and tibia of the palps are on the inner side provided with a row of bigger tubercles of which that next to the base of tibia is somewhat bigger than the others; this tubercle represents the gibbosity mentioned by Balzan (see above), and is probably present in both sexes. The front margin of cephalothorax in the male has, besides the central sinuation, another smaller sinuosity on each side of this, the front margin thus becoming quadridentate (in the ♀ there is only a central sinuation, as Tullgren rightly observes). The hand of the palps is a little more slender than that of the female.

To the common description of the species (♂ and ♀) may be added: The coxa of the palps is, as Tullgren observes, truncate in front; the front margin is even a little concave, the inner corner with a small point, the outer one with a very long bristle (if not

broken, as it sometimes is). Some specimens are larger than stated by Balzan and Tullgren, the length attaining 2·9 to 3 mm.

The specimens, ♂ and ♀, from Newlands (leg. L. Péringuey, see above) diverge somewhat from typical ones in having the hand somewhat more slender and more narrowing towards both ends, and the sexual region of the male not quite so dark-coloured, though the specimens appear to be adult.

30. Garypinus capensis, nov. sp.

Four eyes, two on each side, nearly contiguous, the anterior one scarcely 1 diameter from the front margin.

Colour.—Palps reddish brown, the fingers darker; tergites, sternites, and cephalothorax brown, the sternites paler; the brown area of cephalothorax does not quite attain the hind margin, being limited behind by a transverse groove, strongly curved backwards; the area lying behind this groove is very pale. The other parts of the animal pale greyish brown.

Cephalothorax considerably longer than wide (about 4 : 3), the slightly convex lateral margins are somewhat convergent up to the eyes, in front of these a little contracted, the front margin slightly convex. Cucullus is very short. A transverse groove, strongly recurved, seems to limit the brown colour of cephalothorax. The surface smooth and glossy. The few hairs left are pointed.

Abdomen very slender, as is the whole body. The tergites and sternites are broadly divided longitudinally, except the last one. The three anterior pairs of sclerites above are very short, and have the longitudinal division broadest. The surface smooth and glossy, with moderately long and pointed hairs.

Palps considerably shorter than the body, with abdomen extended, smooth and glossy, with moderately long hairs which are thin and pointed. Trochanter with a short stalk, pernæ formed, a little longer than wide, slightly convex in front, slightly concave behind. Femur with a distinct stalk, slender, three times as long as wide, nearly parallel-sided, slightly convex in front, behind nearly straight, only a little rounded at the base and the tip. Tibia with a distinct stalk, considerably shorter and a little broader than femur, somewhat convex and almost equally so on both sides, rounded at the tip. Hand with a stalk, and with a regularly rounded base, about 1½ times as wide as tibia, equally and slightly convex on both sides, passing gradually into the fingers. Fingers moderately robust, a little curved, and a little shorter than the hand.

Mandibles very small. Galea of the male short and apparently simple, that of the female somewhat longer and with some minute teeth at the tip.

Legs with simple hairs. Femur I. and II. have the basal part a little shorter than the tibial one and the articulation only slightly developed; the first tarsal joint a little shorter than the second; the whole tarsus a little shorter than tibia. Femur III. and IV. are very broad, the tarsus considerably shorter than tibia. The claws simple. Arolium divided.

Length 2·8 mm.; breadth of abdomen 0·57 mm.

Measurements.—Cephalothorax: long. 0·57; lat. behind 0·40. Femur: long. 0·43; lat. 0·13. Tibia: long. (excl. of stalk) 0·29; lat. 0·16. Hand: long. 0·41; lat. 0·23. Fingers: long. 0·36 mm.

Habitat.—The Rev. R. Godfrey, who collected this species, gives the following list of localities in the Cape Province:—

Victoria East Div.: Woodstock, Alice, in nests on yellow-wood; Lovedale, 3 specimens on gum-tree. King William's Town Div.: Cwencwe, 2 females with larval mass in nests, 1 individual free; Xukwane, 5 specimens on tree. I have examined 5 of these specimens.

Note 1.—The species is nearly related to *Garypinus patagonicus* Ellingsen from Patagonia, but the latter is somewhat larger, more robust, and has the galea more branched and the hand proportionally more slender; otherwise there is but little difference. It is more easily distinguished from *G. nobilis* With from Asia which, for instance, has considerably more robust palps.

Note 2.—Mr. Godfrey gives in a letter the following particulars: "This species lives under the bark of trees and is of very active habits. The female makes a silk nest, of very loose texture, between flakes of bark; the nest is appressed to the bark, sometimes on one side only, sometimes on both sides. The nest is of silk only, without any covering of dust or specks of wood. I have found the females in nests in the months of August, November, and December."

31. Garypinus obscurus Tullgren.

Cape Colony. Hanover (S. C. Cronwright Schreiner), 11 ♂, 17 ♀, 3 ♀ jun.; Calvinia (G. French), 6 ♂, 4 ♀.

In the Rev. R. Godfrey's collection:—

Herschel Div.: Bensonvale (W. J. A. Moir), 2 ♂.

Note.—Tullgren knew only the females of this species. I have examined several males which in all essentials resemble the females, but are of smaller size, and have somewhat more slender palps and

the galea very minute and simple, with no teeth. Tullgren says of the palps, that they are smooth and glossy; the surface of the palps, indeed, is not granulate, but is somewhat uneven, and in some places irregularities are met with which might be called a kind of granulation. One larval mass contained 12 animals.

var. GRANULATUS nov.

In the collection of the South African Museum are some specimens, 2 ♂ and 4 ♀, with no indication of locality. I identify these with *Garypinus obscurus*, but as they differ from the typical form in some details, I have regarded them as a variety, distinguishable by the following characters: They are of somewhat larger size and more robustly built, the femur of the palp is a little granulate on the inner and the lower surface (but see my remarks above on the typical form), and the trochanter has the tubercle behind stronger and more pointed.

I have later received this variety from Mr. John Hewitt, Director of the Albany Museum, Grahamstown, 5 ♀, collected at Kimberley (J. H. Power).

32. OLPIUM ARABICUM E. Simon.

Transvaal Province. Zoutpansberg Div.: Kleinfontein Farm (R. Godfrey), 1 specimen, on rocky ground.

The specimen sent to me by the Rev. R. Godfrey from the above locality differs in no essential particulars from the *Olpium arabicum* E. Simon. I have compared it with specimens from the Guinea Coast and from Uganda.

During the printing I received from Mr. Godfrey another specimen (♂) of this species from King William's Town Div.: Debe Nek (leg. Miss Fanny Ross).

33. OLPIUM NITENS Tullgren.

Cape Province. Bredasdorp Div.: Marcus Bay (H. A. Fry), 1 ♀. Cape Div.: Maitland Flats (W. F. Purcell), 1 ♀. Cape Peninsula: Cape Flats, at Zeekoe Vlei (W. F. Purcell), 2 ♀ jun.

NOTE.—There is great probability of this species being the female of *Olpium pusillum* Ellingsen, founded on a male from Fishhoek, near Simonstown.

34. OLPIUM SUBGRANDE Tullgren.

Rhodesia: Baviaan's Kopje, 3 miles East of Umtali (D. L. Patrick), 1 ♂.

The specimen is of somewhat smaller size (♂ 2·6 mm. long) than Tullgren's type (♀ 3·16 mm.); but the males of Olpium generally are smaller than the females. The species seems to be recognisable, among other things by having the femur of the palps somewhat curved.

35. Ideobisium Godfreyi nov. sp.

No eyes. (*Ideoblothrus.*)

Colour.—Both specimens examined are very pale, especially the body; the palps have somewhat more colour and are reddish.

Cephalothorax about as long as wide, the lateral margins, which are nearly straight or slightly convex, are convergent forwards throughout the whole length, the front margin slightly convex, with no central tooth. The surface smooth and glossy. No hairs.

Abdomen.—Tergites and sternites smooth and glossy. Some few hairs left are short and pointed.

Palps very robust, about as long as the body, with abdomen contracted, smooth and glossy. The hairs of the inner side long and pointed, those of the outer side short and pointed. Trochanter with a very short stalk, about as long as wide, slightly convex in front, centrally a little gibbous behind. Femur with a very short stalk, robust, 2½ times as long as wide, basally in front somewhat convex, distally distinctly concave, behind a little widened from the stalk, the outer side nearly straight, centrally a little concave; femur on the whole slightly tapering towards the extremity, thus widest near the base. Tibia with a short stalk, broadly oblong or subglobose, rather equally and strongly convex on both sides, behind, however, most so distally; tibia considerably shorter and a little wider than femur. Hand with a distinct stalk, and with the base nearly regular and somewhat truncate; the outer side nearly straight, except the convex passage into the fingers, distinctly convex in front, passing gradually into the fingers. Fingers very robust, slightly curved and somewhat shorter than the hand.

Mandibles proportionally of small size. Galea small, pointed, straight, and simple.

Legs with pointed hairs. The femora of the two posterior pairs of legs broad. Claws simple.

Length.—One of the specimens with abdomen much contracted is about 1 mm. long, the other specimen a little longer; width of abdomen 0·4 mm.

Measurements.—Cephalothorax: long. 0·34; lat. behind 0·33; in front (viz., the length of the front margin) 0·21. Mandibles: long. 0·14. Femur: long. 0·29; lat. at the base 0·11. Tibia: long

(excl. of stalk) 0·20; lat. 0·14. Hand: long. 0·24; lat. 0·17. Fingers: long. 0·20 mm.

Habitat.—Cape Province. King William's Town Div.: Frankfort Hill (R. Godfrey), April, 1909, 2 specimens, under stones, 3,000 feet above the sea.

Note.—This species is closely related to *Ideobisium* (*Ideoblothrus*) *bipectinatum* Daday, from New Guinea. I have compared the South African form with a specimen from the Bismarck Archipelago, which I have identified with Daday's species, and I should be inclined to take them to be varieties of the same species were it not that the localities are so far apart. But there are, nevertheless, some small differences: the New Guinea form has the galea curved, the front side of femur more convex in the basal part, and the outer side nearly straight, tibia still more subglobose, thus shorter in proportion to the width, the outer side of the hand not quite straight, but somewhat convex, and the fingers proportionally shorter. Both species are of small size. *Ideobisium Godfreyi* is the first *Ideoblothrus* known from Africa.

36. Ideobisium quadrispinosum Tullgren.

Cape Province. Cape Peninsula: (R. M. Lightfoot), 1 ♂, 1 jun.; Signal Hill (W. F. Purcell), 6 ♂, 6 ♀, 8 jun.; (R. M. Lightfoot), 1 ♂; (S. C. Cronwright Schreiner), 1 ♀; Wynberg Hill (F. Treleaven), 1 ♂; Table Mountain at Kasteel's Poort (W. F. Purcell), 1 ♀; Newlands (L. Péringuey), 7 ♂, 2 ♀ (on these specimens see special remark below). Caledon (W. F. Purcell) 1 ♀.

In the Rev. R. Godfrey's collection there are 2 ♂, 4 ♀, 3 jun. from King William's Town Div.: Pirie Forest and mountains.

During the printing I received from Mr. Godfrey one specimen from Griqualand East: Isolo (Miss Fanny Ross), June, 1912.

Mr. Godfrey remarks in a letter: "A ground species living under stones, in the forest and also on the open hillsides, up to 3,000 feet. It is not at all abundant."

Note.—I have referred all specimens mentioned above to Tullgren's species, in spite of some differences from his description.

Tullgren's specimen was certainly very young and of small size; the former fact is apparent from the very pale colour; there are among the specimens enumerated above some that are pale and young and then of about the same size as Tullgren's animal. But if my identification is correct, the adult species is of a considerably greater size. The largest specimens came from Newlands (L. Péringuey leg.), and among these are two females which attain

the considerable length of 5·5 mm. (Tullgren's was only 1·74 mm. long), but then the abdomen is extended to the greatest possible extent, and Tullgren's example may have had the abdomen much contracted, which, among the Pseudoscorpions, is of great consequence as concerns the length; the males from the same locality were of considerably smaller size. The specimens from the other localities were all smaller, but, with few exceptions, seemed to be younger and not quite mature, although the sexual area of the males appeared quite developed. As regards the galea, I shall make the following remarks: It is only in some younger specimens that the galea seems to be in some measure such as described and figured by Tullgren. Moreover, the galea may vary exceedingly. In the smaller (and younger) specimens the galea is divided into branches, but the division does not always extend to the base; this may be different even in the same animal. But in the larger and the largest specimens the form of the galea becomes more intricate, the chief branches being often quite considerably rebranched and provided with teeth, and such is especially the case with the large specimens from Newlands. As, however, all other characters in all essential particulars agree well, I have looked on this variation in size and in the form of the galea only as differences derived from the different stages of age, and have not even tried to make any varieties. On the whole it may thus be said that the younger and smaller the specimens are, the more simple is the galea and the nearer is the approach to Tullgren's type. Finally, it may be remarked that there is no essential difference between the galea of the male and of the female.

The palps of the male are somewhat more slender than those of the female, the hand, especially, of the female is more robust than that of the male, particularly in large specimens; the same is the case with the tibia.

A remarkable character which Tullgren overlooks, or at least does not mention, is worthy of notice: The inner margin of the fingers of the palps, that of the fixed finger as well as that of the movable one, is provided with a membranaceous, somewhat transparent, longitudinal, rather high, raised ridge or rim, on which the teeth are placed; this membrane is especially developed in the distal half of each finger; such a transparent membrane has not as yet been observed in any species of Pseudoscorpions, or at least not mentioned in the literature, to my knowledge, except in *Chthonius mordax* Tullgren, and in that species the ridge is not quite membranaceous, properly speaking, and not transparent.

37. Chthonius clathratus Tullgren.

Cape Province. Cape Peninsula: Table Mountain, near Platteklip (W. F. Purcell), 1 ♀.

I have referred this specimen, not quite adult, to the above species; it has the same kind of dentition on the fingers of the palps as *Chthonius sinuatus* (see this species below). Tullgren says nothing about the shape of the fingers; in my specimen these are nearly straight, by which the species is easily distinguished from *Chthonius sinuatus*. Tullgren's description on the whole agrees very well. The posterior eyes are very little developed, but this happens often in *Chthonius*.

38. Chthonius contractus Tullgren.

Cape Province. Oudtshoorn Div.: Cango Caves (W. F. Purcell), 1 specimen immature, destitute of eyes.

King William's Town Div.: Pirie (R. Godfrey), 1 ♂, 1 ♀, 1 jun.

Note.—The male has its palps somewhat more slender than those of the female. The teeth of the fingers, similarly shaped on both, are small, triangular, pointed, and situated considerably apart from each other.

The specimen found in the dark caverns at Cango is destitute of eyes, but belongs certainly to this species.

39. Chthonius Godfreyi nov. sp.

Four moderately large eyes, two on each side, about 1 diameter apart from one another, the anterior one about 2 diameters from the front margin.

Colour.—Cephalothorax, mandibles and palps pale reddish brown, the tergites reddish olive, the other parts palish brown.

Cephalothorax about as long as wide in front, strongly narrowing backwards, the lateral margins ⁀ curved, only very little contracted in front of the eyes; the front margin slightly convex, a little sinuated in the middle, and there provided with a more or less rounded projection, which, together with the adjoining part of the front margin on both sides, is slightly dentate; on each side of the projection a long and robust bristle. The surface minutely shagreened and glossy. Hairs lacking.

Abdomen.—The tergites and sternites glossy and very minutely shagreened transversally. Hairs lacking.

Palps a little longer than the body, glossy and somewhat shagreened, a little more strongly so than the body; the hairs very few

and scattered, pointed, those of the inner side long and strong, those of the outer side very short and more slender. Trochanter with a short stalk, and very short, of the shape usual in *Chthonius*, slightly convex in front, a little concave behind. Femur long and slender, 5 times as long as wide, nearly parallel-sided, except in the distal third which is somewhat widened on both sides, thus on the whole somewhat club-shaped; the inner side at the stalk as usual with a sinuation. Tibia very short and of the usual shape. Hand scarcely pedicellate, very short and broad, with the base obliquely rounded, the outer side slightly convex, the inner side somewhat more strongly so, slantingly passing into the fingers. Fingers very slender, seen from above nearly straight, a little more than twice as long as the hand; seen laterally the fingers are strongly curved, the movable finger regularly curved throughout its whole length, most strongly so at the tip; the fixed finger is doubly curved like ⌒; the fixed finger distinctly longer than the movable one; the fixed finger has long, narrow, pointed teeth with great interstices, centrally the teeth are longest and have the largest interstices, basally and apically the teeth are lower and placed more closely. *The movable finger is practically destitute of teeth;* the margin is, however, not quite entire, but has some very low traces of teeth.

Mandibles large and robust, shagreened; the fixed finger provided with 5 to 6 teeth, the central ones the largest, decreasing in size backwards; the movable finger with 8 to 9 very small teeth in the distal half. On the outer side of the movable finger there is generally the usual projection.

Legs.—The two posterior pairs of legs very robust, particularly the femora. Claws simple.

Length 2·3 mm.

Measurements.—Cephalothorax: long. 0·64; lat. in front 0·57; lat. behind 0·43. Mandibles: long. 0·53. Femur: long. 0·93; lat. at the tip 0·18. Tibia: long. 0·28; lat. at the tip 0·18. Hand: long. 0·43; lat. 0·28. Fingers, the fixed one: long. 0·93 mm.

Habitat.—Cape Province. King William's Town Div.: Pirie (R. Godfrey), 6 ♂, 3 ♀, 1 jun.

Note.—This species is related to *Chthonius contractus* Tullgren, with, for instance, the same shape of cephalothorax, but differs from it in several characters: The fingers of the palps, which are curved and not of equal length; the movable finger nearly completely lacking teeth (Tullgren, as to *Chthonius contractus*, in this respect refers to *Chthonius terribilis* With, which has distinct teeth on both fingers), more precipitous passage from the hand to the fingers; finally, the

fingers are more than twice as long as the hand (in *Chthonius contractus* as 31 : 18).

40. Chthonius mordax Tullgren.

Cape Province. Cape Peninsula: Table Mountain, near Platteklip (W. F. Purcell), 16 ♂, 11 ♀, 1 jun., and (R. M. Lightfoot), 2 ♂, 6 ♀; above Klaasenbosch (W. F. Purcell), 1 ♀; Table Mountain with no nearer locality (R. M. Lightfoot), 2 ♀; Signal Hill (W. F. Purcell), 16 ♂, 13 ♀; Kalk Bay (R. M. Lightfoot), 4 ♂, 3 ♀; Camp's Bay (W. F. Purcell), 10 ♂, 8 ♀; Cape Peninsula, no nearer locality (R. M. Lightfoot), 3 ♀.

The Rev. R. Godfrey's collections contained 12 ♂, 11 ♀, 3 jun. Mr. Godfrey has collected this species in the following localities: Cape Peninsula: Foot of Table Mountain, 4 ♂. King William's Town Div.: Pirie, "very abundant."

"This species makes no nest for any purpose whatsoever as far as I have seen. The female carries her larval mass about with her, leading a free life. The usual number of larvæ is seven, though it may be as low as four. I have found the female carrying her larval mass in April, August, September, October, and December" (R. Godfrey in litt.).

Note.—This species seems to be very abundant, and is likely to be distributed throughout the whole of Cape Province; it is particularly very abundant in the Cape Peninsula. It is easily recognised, having some very distinguishing characters. Among these are: The shape of the palps, something similar to the palps of *Chthonius tetrachelatus* Preyssler, having the upper side of the hand distally depressed (or rather curved), but not so much and not so abruptly as is the case in the latter species; no confounding is, therefore, possible. Tullgren gives us a good figure of the palps. Further may be added: The projection at the base of the movable finger, although this projection may be of different size and, therefore, sometimes rather little prominent; and finally, the undulating lamella of the movable finger, very characteristic; but this lamella in younger specimens and in such as have recently cast their skin, is often rather little developed, and then the margin of the finger is nearly entire; the few, generally 4, teeth near the tip are, on the contrary, always present.

The length of the fingers in proportion to the hand may vary; generally they are a little longer than the hand, but are often of about the same length.

The articulation between the two parts of femur of the two posterior pairs of legs, especially of the last pair, is well developed.

The colour of the specimens from the Cape Peninsula is generally somewhat paler than of those from the interior.

The number of eggs or larvæ seems to vary between 4 and 9; they generally lie in a circle with one or two in the middle. The time of reproduction seems to be nearly the whole year; specimens with larval mass have been noted in all months, except January, March, and November.

11. Chthonius serratidentatus nov. sp.

Four small eyes, two on each side, about $\frac{1}{2}$ diameter from each other, the anterior one about 1 diameter from the front margin.

Colour.—Palps and mandibles pale reddish, cephalothorax, tergites, and sternites pale brownish.

Cephalothorax distinctly shorter than wide in front (5 : 6), strongly narrowing backwards, the lateral margins ⌒ curved, scarcely contracted in front of the eyes; the front margin very little convex, not sinuated centrally, but provided in the middle with a rather large, triangular, pointed projection, which is minutely dentate; there has, in all probability, originally been a bristle on each side, but this has been lost; in one specimen its position is still to be seen. The surface minutely shagreened and glossy. Hairs not present.

Abdomen.—Tergites and sternites slightly shagreened and glossy. Hairs not present.

Palps about as long as the body, rather robust, glossy and shagreened, on the inner side with long and thick bristle-like hairs, on the outer side hairs are lacking in two specimens, in the third some few short ones are left. Trochanter very short and with a very short stalk, of usual shape, the inner side slightly convex, the outer one concave. Femur with a short and indistinct stalk, rather short and robust, four times as long as wide in the distal third, somewhat club-shaped, gradually increasing in width distally, especially in the distal half, the inner and outer contour thus being slightly concave. Tibia very short, strongly curved, and shaped as usual. Hand with a short stalk; short, with the base obliquely rounded, rather broad, on both sides slightly and equally convex, rather abruptly passing into the fingers; worthy of attention is a *strong bristle* seated on a little wart on the inner side, near the tip of the hand. Fingers very much longer than the hand (about 12 : 7), very slender, seen from above slightly curved, about of equal length; laterally seen the fingers are nearly straight, only a little curved towards each other at the tip; the inner margin of both fingers is provided with teeth of about equal shape; these teeth are triangular and pointed, adherent

at their base; most of the *teeth, particularly those of the fixed finger, are provided with one or two smaller teeth,* especially on the proximal side of each tooth; the movable finger has such dentate teeth only in the distal third, basally the teeth become lower, truncate and simple.

Mandibles large and robust, shagreened; the fixed finger with 4 to 5 large teeth in the central part and some very small ones basally; the movable finger has several small teeth. The projection of the outer side of the movable finger only slightly developed.

Legs with very strong, bristle-like hairs. The two posterior pairs robust with rather broad femora. Claws simple.

Length 2·06 mm.

Measurements.—Cephalothorax: long. 0·57; lat. in front 0·67; lat. behind 0·49. Mandibles: long. 0·57. Femur: long. 0·76; lat. 0·19. Tibia: long. 0·21; lat. 0·17. Hand: long. 0·40; lat. 0·28. Fingers: long. 0·67 mm.

Habitat.—Cape Province. King William's Town Div.: Pirie (R. Godfrey), 3 ♀.

Note.—This species is especially marked out by the teeth of the fingers, which are exceedingly characteristic, being somewhat like the teeth of a shark; though each tooth has only one or two secondary teeth, the whole series calls to mind the row of teeth of a shark.

In South Africa there are 3 species of *Chthonius* with cephalothorax, narrowing very much backwards: *Chthonius contractus* Tullgren and the two new species described here: *Chthonius Godfreyi* and *Chthonius serratidentatus.* These three species are, however, easily distinguishable by the dentition of the palpal fingers, *Ch. contractus* having both fingers provided with slender, pointed, and remotely placed teeth; *Ch. Godfreyi* one finger with similar teeth, but the other nearly destitute of such ones; and finally *Ch. serratidentatus* with the characteristic teeth just mentioned.

42. Chthonius sinuatus Tullgren.

Cape Province. Cape Peninsula: Retreat (W. F. Purcell), 1 ♀.

I have compared this single specimen with one from San Thomé (Guinea Coast), which I have identified with Tullgren's species. The South African animal has the hand of the palps somewhat more robust, but in both cases the hand is convex on both sides, and in both cases the inner margin of the fingers is provided with small,

closely placed teeth. The fingers of both specimens are distinctly curved. I suppose that both examples belong to one and the same species, that mentioned above.

Synoptic Key

to the South African species of *Chthonius*, based chiefly on the dentition of the palpal fingers.

	No teeth	*Ch. natalensis.*
	Teeth present	1.
1.	Movable finger with undulatory lamella	*Ch. mordax.*
	Movable finger with no undulatory lamella	2.
2.	The teeth are dentated	*Ch. serratidentatus.*
	The teeth not dentated	3.
3.	Movable finger with no teeth, fixed finger with slender teeth, and large interstices	*Ch. Godfreyi.*
	Both fingers with teeth	4.
4.	Teeth of same kind on both fingers, triangular, pointed, with large interstices	*Ch. contractus.*
	Teeth very small, closely placed	5.
5.	Fingers nearly straight	*Ch. clathratus.*
	Fingers distinctly curved	*Ch. sinuatus.*

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